

D-Link **DVG-5121SP**

VoIP Telephone Adapter

User Manual



D-Link[®]
Building Networks for People



RECYCLABLE

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1. Introduction

1-1. Product Overview.....	5
1-2. Product Features.....	6
1-3. Hardware Description.....	8

2. Before You Begin

2-1. Package Contents	11
2-2. System Requirements	11

3. Installation and Applications

3-1. VoIP Telephone Adapter Assigned with a Public IP Address.....	12
3-2. VoIP Telephone Adapter in a NAT Network.....	13
3-3. Telephone Interface Description.....	14
3-4. Setting a VoIP Telephone Adapter with WEB Browser.....	15

4. Basic Network Settings**4-1. WAN**

4-1-1. Static IP.....	17
4-1-2. DHCP.....	18
4-1-3. PPPoE.....	20
4-1-4. PPtP.....	24
4-1-5. L2TP.....	27
4-1-6. Big Pond.....	29

4-2. LAN

LAN Setting.....	31
------------------	----

4-3. DHCP Server

4-3-1. DHCP Server Setting.....	32
4-3-2. DHCP Static Map.....	33

5. Advance Network Settings

5-1. NAT.....	34
5-2. Virtual Server Setting.....	35
5-3. Application Setting.....	37

5-4. UPNP Setting.....	39
5-5. Route	
Static Route.....	40
5-6. Security	
5-6-1. MAC filter.....	42
5-6-2. IP Filter.....	43
5-6-3. URL Filter.....	44
5-6-4. Domain Filter.....	45
5-6-5. Firewall.....	46
5-6-6. Rule Summary.....	47
6. SIP Setting	
6-1. Basic Setting.....	48
6-2. Account Setting.....	50
6-3. NAT Traversal.....	51
7. VOIP Setting	
7-1. Voice Setting.....	52
7-2. Call Service.....	54
7-3. Phone Setting.....	56
7-4. E.164 Setting.....	58
7-5. FAX Setting.....	59
7-6. General Dialing Setting.....	60
7-7. QOS/TOS Setting.....	61
7-8. Phone Book.....	64
7-9. Call Screen.....	65
8. Tools	
8-1. Admin.....	66
8-2. Page Configure.....	67
8-3. Date/Time.....	68
8-4. DDNS.....	70
8-5. System.....	71

8-6. Firmware.....	72
8-7. Device Setting.....	73

9. Status

9-1. Device Information.....	74
9-2. Log.....	75
9-3. Status.....	76
9-4. CDR.....	77

10. Telnet

Run Telnet.....	78
-----------------	----

1. Introduction

1-1. Product Overview

D-Link®, an industry leader in networking, introduces DVG-5121SP VoIP telephone adapter for the home environment. The DVG-5121SP VoIP Telephone Adapter converts any existing analog (cord or cordless) telephone into an IP Phone. Also by plugging in a FAX machine, the DVG-5121SP will enable users to send and receive fax the same way as a traditional analog telephone line.

The DVG-5121SP carries both voice and facsimile over the IP network. It supports SIP industry standard call control protocol and is compatible with free registration services or VoIP service providers' systems. It also supports the most popular audio CODECs to ensure compatibility and voice quality.

The DVG-5121SP provides two FXS port to connect to two analog telephone sets, PSTN lifeline port to connect to the phone line, one Fast Ethernet (10/100) port to connect to the VoIP telephone adapter and another LAN port which allow another computer to be connected by wire.

VoIP service providers can configure service settings such as a server address, CODEC and STUN settings via TFTP directly to the DVG-5121SP.

For security, all of the configuration settings are encrypted. Only the VoIP service providers/resellers with the authenticated password and user name can access them.

The DVG-5121SP features both the VAD (Voice Activity Detection) and CNG (Comfort Noise Generator) to reduce the bandwidth consumption and to sustain voice quality.

The DVG-5121SP has a built-in QoS setting to provide voice priority in IP networks and prevent dropped calls.

1-2. Product Features

WAN:

- One RJ-45 10/100Mbps auto-MDI/MDIX Ethernet port
- WAN type: Static IP, PPPoE, DHCP, PPtP, Big Pond, PPtP Client
- VPN Pass Through
- QoS: IP Precedence, DiffServ
- NAT Traversal: Outbound Proxy, STUN, UPnP
- SIP and RTP Priority Queuing
- RTP Packet Summary: sent, received, loss packet count
- NTP: 3 Time Servers, Time Zone support
- DDNS: DynDns.ORG
- MAC Address Clone

LAN:

- One RJ-45 10/100Mbps auto-MDI/MDIX Ethernet port
- Router or Bridge mode
- NAT / PAT (RFC1631 / RFC3235):
- Virtual Server, DMZ
- DHCP Server (RFC 2131 / RFC2132)
- Firewall: MAC Filter, IP Filter, Port Filter

VoIP:

- Two FXS RJ-11 ports
- One FXO RJ-11 PSTN line port

Management:

- LEDs: Power/Alarm, VoIP, WAN, LAN, Phone/Line
- Web-based, TELNET
- Password controlled administration
- Remote firmware upgrade via TFTP or FTP
- Inbuilt PING tool
- Multi-function reset button: restore default

Voice

Pond Key

SIPv2 (RFC3261) compliance

SIP METHOD: ACK, BYE, CANCEL, INFO, INVITE, NOTIFY, OPTIONS, PING, PRACK, REFER, REGISTER, SUBSCRIBE, UPDATE

SIP Extension: Session Timer, Proxy-Require,

P-Asserted (RFC3325), MWI (RFC3842)

Voice Compression: G.711 a/u-law , G.726, G.729A/B, G.723.1

CNG and VAD

Silence suppression & detection

168 Echo Cancellation

Adaptive jitter buffer

Programmable gain control

In-band DTMF

Out-of-band DTMF relay: RFC2833

*DTMF

Termination Impedance: 600/900& complex Impedance

Failover SIP Proxy server registrations

Failsafe Mechanism (FXS relay to PSTN):

Network failure

Service unavailable

Power loss

*T.30 FAX pass through, T.38 real time FAX relay

Caller ID: DTMF, FSK-Bellcore

*Hunting number support

*Telephone book

*E.164 numbering

Hot line

Call features:

Call Hold, Call Waiting, *Call Pickup

Call Forward - Unconditional, Busy, No Answer

*Call Transfer - Unattended, Attended

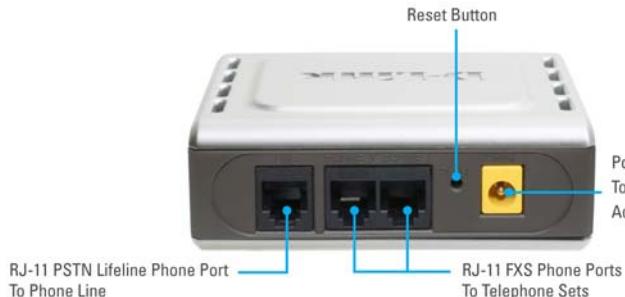
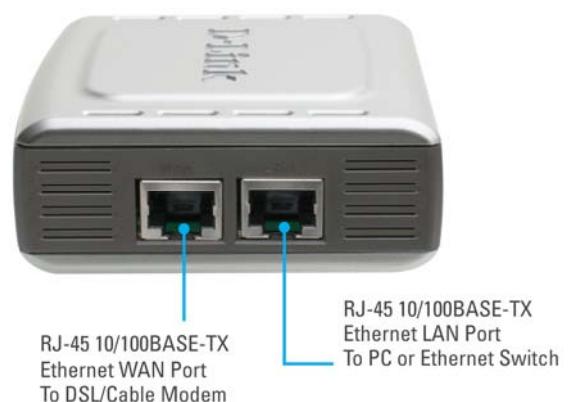
Speed Dialing, Repeat Dialing, Three Way Calling (Media Server required)

1-3. Diagnostic LEDs and External Interfaces

Front Panel



WAN LED	When a connection is established, this LED is on. The LED will blink to indicate network traffic is passing through the WAN port. If the LED does not light up when a cable is connected, verify the cable connections and make sure the connected devices are powered on.
LAN LED	When a connection is established, the LED will light up. The LED will blink to indicate activity. If the LED does not light up when a cable is connected, verify the cable connections and make sure the connected devices are powered on.
Power LED	When this LED is on, DVG-5121SP is powered on.
Provision LED	The Provision LED will flash during the device access to TR-069 provision ACS and off after provision process finished
Phone LEDs Phone 1 Phone 2	These LEDs display the VoIP status and Hook activity on the phone ports that are used to connect to the analog telephones. If a phone connected to a phone port is off hook or in use, this LED will light up. When a phone is ringing, the indicator will blink.

Rear Panel**Side Panel**

WAN Port	This port connects to your broadband modem or router through an Ethernet cable.
LAN Port	This port connects to an Ethernet enabled computer/IP sharing device using Ethernet cabling.
Reset	This button is used to reset the unit to its factory default settings.
Phone Ports x2	Each of ports connects to an analog phone via an RJ-11 phone cable.
RJ11 PSTN Life Line Phone Port	This port connects to the wall phone line via an RJ-11 phone cable.
Power Socket	This socket connects to the external power adapter.



WARNING: To avoid any possible damage to your DVG-5121SP devices, do not connect the Phone 2 port to a wall phone line. If any of these are done, your DVG-5121SP may be damaged.

Restore to factory default:

A Reset Button is provided on the rear panel of the DVG-5121SP VoIP Telephone Adapter. This Reset Button is used to restore any settings that you have act in the DVG-5121SP to its factory default settings. Examples of these settings are the IP address, user's name and password.

To reset the DVG-5121SP to its default settings, do as follows:

- (1) Turn OFF the power of the DVG-5121SP by unplugging the external power adapter.
- (2) Use a tip of a pen, push the Reset Button continuously for about 6 seconds.
- (3) Release the Reset Button to return the DVG-5121SP to its default settings

2. Before You Begin

2-1. Package Contents



Check the Content of Your DVG-5121SP Package:

DVG-5121SP VoIP Telephone Adapter

CAT5 Ethernet Cable* 1

CD-ROM

Standard RJ-11 Phone Cable*1

Quick Installation Guide

12VDC 1.25A Power Adapter

If any of the above items are missing, please contact your reseller.

2-2. System Requirements for Configuration:

Make sure you have all of the following before you begin to set up the DVG-5121SP

A subscription with an Internet Service Provider (ISP)

A Computer running Windows, with a CD-ROM drive and an Ethernet port

An Ethernet-based broadband modem

A standard analog telephone

3. Installation and Applications

3-1. VoIP Telephone Adapter Assigned with a Public IP Address

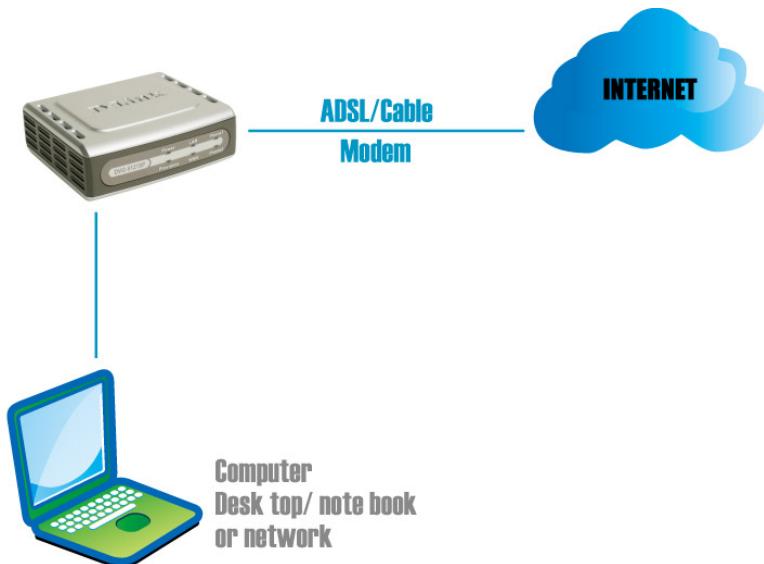
The VoIP telephone adapter will have a Public IP address for Internet connection regardless of whether it is a static IP address, DHCP (using a Cable Modem), or PPPoE (Dialup / ADSL).

VoIP telephone adapter IP Settings	Need to set up as static IP, DHCP, or PPPoE	
NAT/STUN Settings	Optional setting	
DDNS Settings	Optional setting	

3-2. VoIP telephone adapter in a NAT network

The VoIP telephone adapter uses a virtual IP address and the IP sharing function of other systems to connect to the Internet.

LAN IP address of IP sharing	Please avoid IP address 192.168.1.1-192.168.1.254 (You may need to change the settings of IP sharing or change SIP series VoIP telephone adapter LAN Port IP address)	
VoIP telephone adapter IP Settings	Set as static IP address, and assign the LAN IP address of the IP sharing to the Default VoIP telephone adapter.	
NAT /STUN Settings	Enable	If the WAN of the IP sharing device has static IP address, then the NAT IP address is set as the Public IP address of the IP sharing.
		If the WAN of the IP sharing device uses a dynamic IP address, then it has to comply with the DDNS settings. When using NAT, you must enter the URL (Uniform Resource Locator) that is registered to the DDNS server.
DDNS Settings	The WAN of the IP sharing device has a static IP address.	Disabled
	The WAN of the IP sharing device has a dynamic IP address.	Enabled: enter the registered URL (Uniform Resource Locator) into the network settings -> under NAT



3-3. Telephone Interface Description

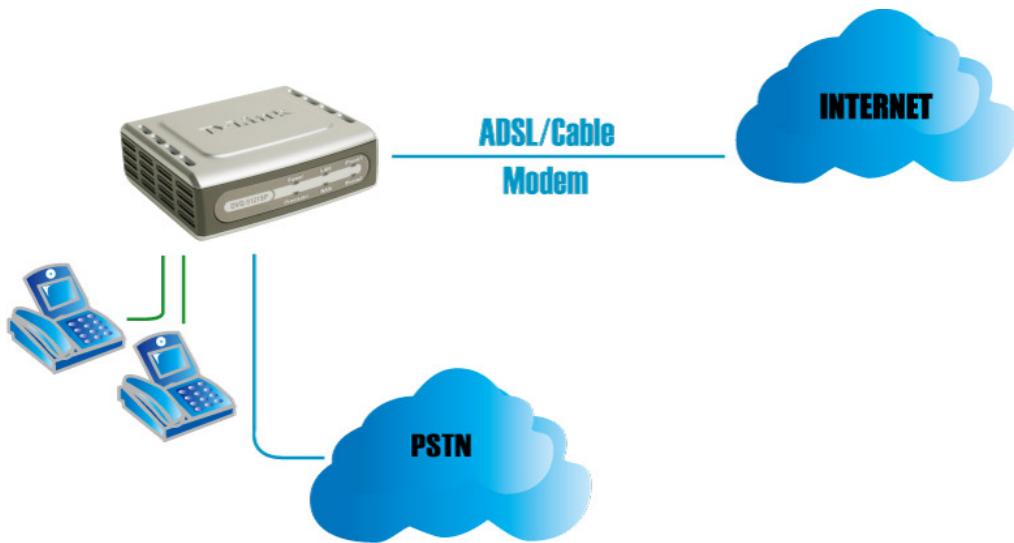
Example:

DVG-5121SP connecting directly to phone sets

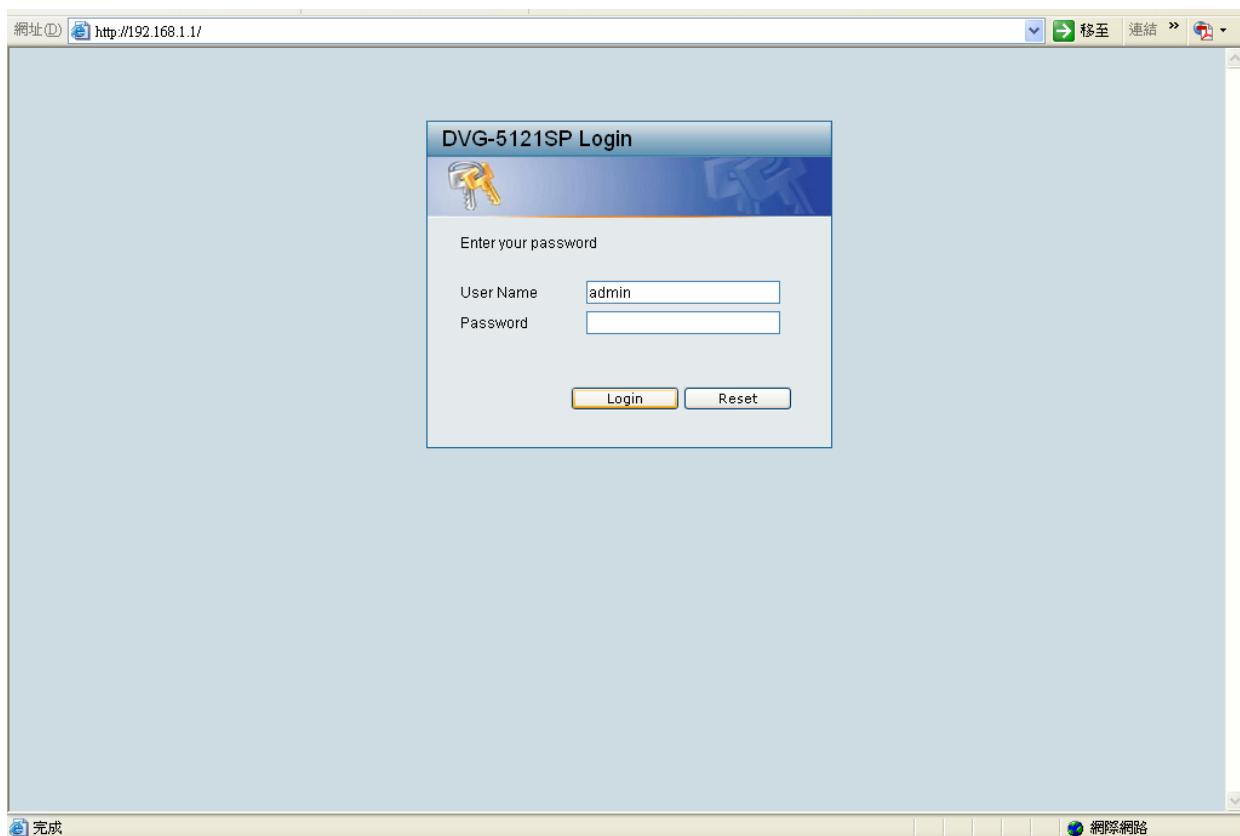
After connecting telephone sets to P1-P2, users can make direct calls, (P1-P2 are FXS interfaces). Each set acts as an independent IP line that provided by applied SIP server.

Integrating the DVG-5121SP with PBX

Line port is PSTN/ PBX <FXO> interfaces, that connected to telephone sets for direct calls. But for this product definition, it just supported as a back up solution enabled automatically when network or SIP phone failed.



3-4. Setting up the DVG-5121SP Using a Web Browser



The factory default LAN Port IP address is 192.168.1.1

Instructions

Step1. Open an Internet browser.

Step2. Enter VoIP telephone adapter's WAN Port IP address in the website address area (If the PC is connected to the LAN Port, enter the LAN Port IP address. The default is 192.168.1.1)

Step3. The factory default settings for **Login ID is Admin and Password is left blank**).

Step4. Change the default settings of Administrator's Name, Password and Web UI Login ID, Password in **Administrator account**.

After completing and confirming the settings, some of the settings will take effect immediately. But some of network related settings would take effect after the VoIP telephone adapter is restarted. Please go to **System Operation** to save the settings before restarting the system if needed.

The DVG-5121SP VoIP telephone adapter doesn't allow multiple people to configure the VoIP telephone adapter at the same time. If a user already logged into the system, other users from different IP addresses cannot login at the same time. Please remember to logout or restart the system if not using the web configuration function. Or some of the network management, like the Telnet will not be allowed to use for the network control.

4. Basic Network Settings

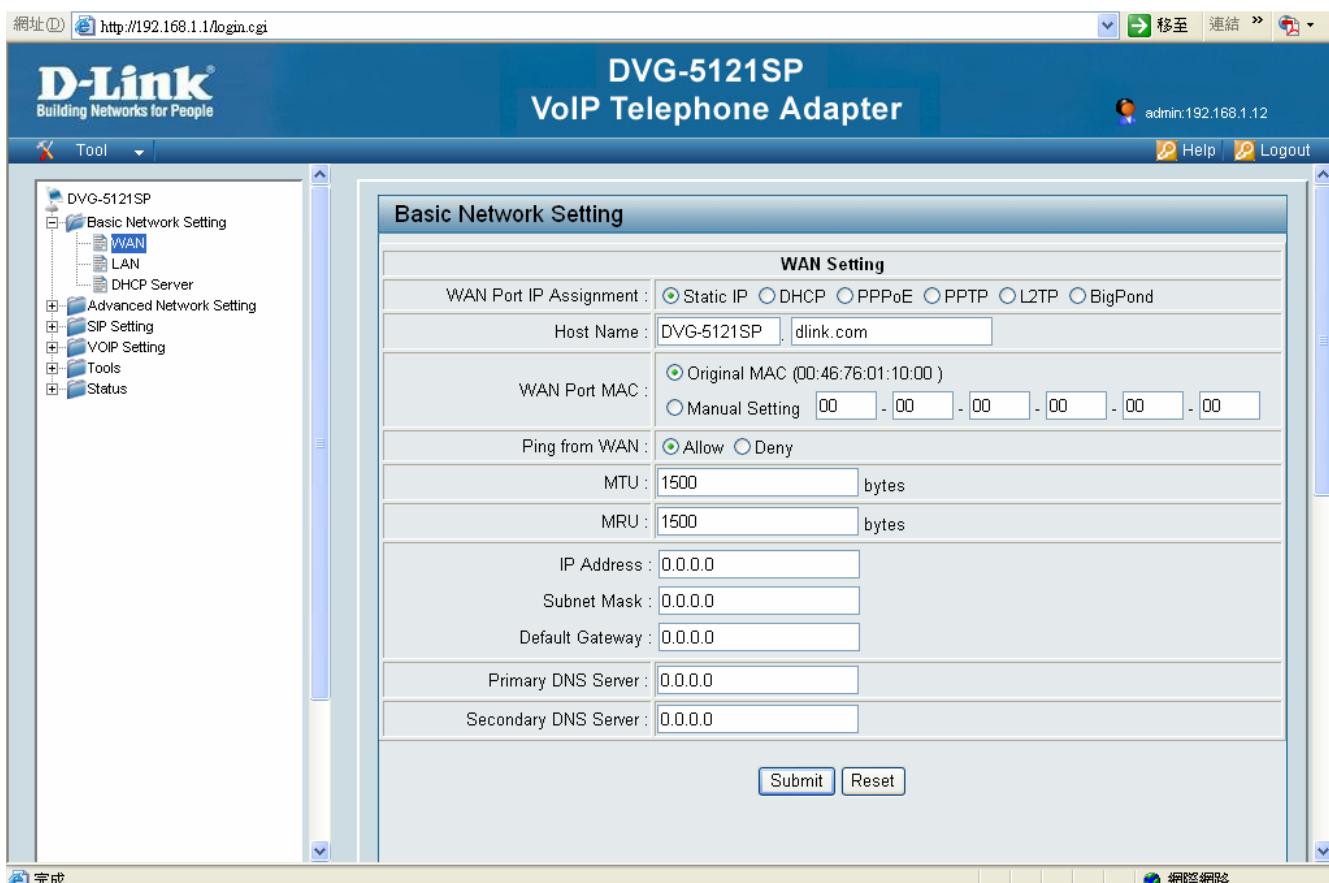
4-1. WAN

The network settings are used to set the VoIP telephone adapter's communication ports, IP configurations, ADSL service setting, IP tunneling and etc. You might refer to the following pages for different WAN settings.

4-1-1. Static IP

Just as each building on a street has an address, so does each computer on the Internet. This "address scheme" allows you to distinguish between every computer on the Internet. For example, you may have come across a number in association with Internet lingo such as "198.69.121.3"--or something similar. This is an Internet Protocol (IP) address.

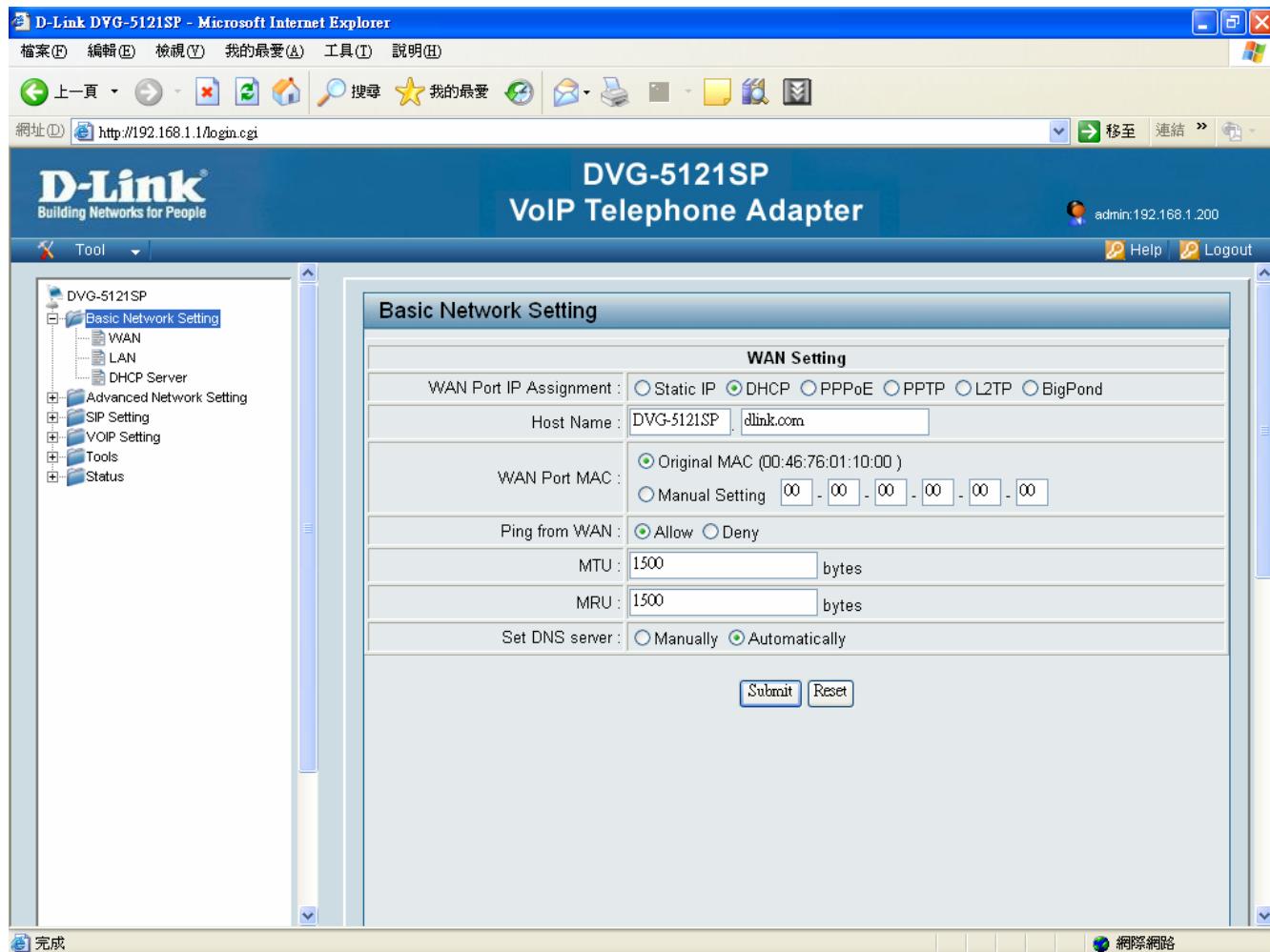
WAN Port IP Assignment: Select Static if your ISP assigned you a fixed IP address, subnet mask, and DNS server addresses. Please contact your local Internet Service Provider (ISP) if you have any questions.



4-1-2. DHCP

DHCP stands for "Dynamic Host Configuration Protocol". DHCP's purpose is to enable individual computers on an IP network to extract their configurations from a server (the 'DHCP server') or servers, in particular, servers that have no exact information about the individual computers until they request the information. The overall purpose of this is to reduce the work necessary to administer a large IP network. The most significant piece of information distributed in this manner is the IP address.

WAN Port IP Assignment: Select Dynamic (DHCP, most common) to set user settings of WAN port MAC, WAN port ping and DNS server



Host Name: The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

WAN Port MAC: The default MAC Address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. It is not recommended that you change the default MAC address unless required by your ISP. The default MAC address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. You can use the "Clone MAC Address" button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the router.

Ping from WAN: While enable, it allows end user ping from WAN through internal to check the device working or not.

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 bytes is the default MTU.

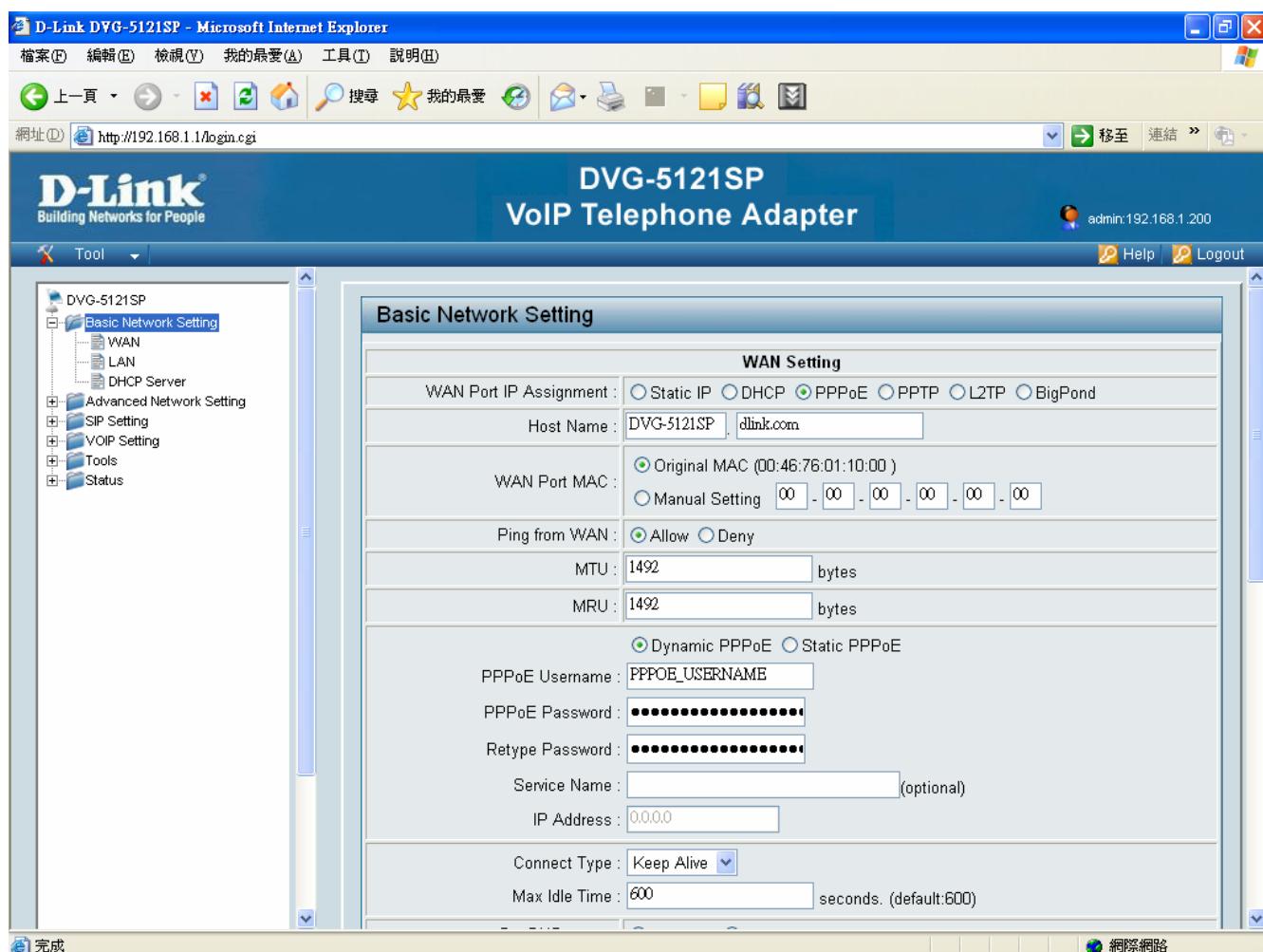
MRU: Maximum Receive Unit - you may need to change the MRU for optimal performance with your specific ISP. 1500 is the default MRU.

Set DNS server: Enter the Primary DNS server IP address assigned by your ISP.

4-1-3. PPPoE (DSL)

Point to Point Protocol over Ethernet is a proposal specifying how a host personal computer (PC) interacts with a broadband modem (i.e. xDSL, cable, wireless, etc) to achieve access to the growing number of High speed data networks. Relying on two widely accepted standards, Ethernet and the point-to-point protocol (PPP), the PPPoE implementation requires virtually no more knowledge on the part of the end user other than that required for standard Dial up Internet access. In addition, PPPoE requires no major changes in the operational model for Internet Service Providers (ISPs) and carriers. The significance of PPP over Ethernet has to do with its far greater ease of use versus competing approaches. By making high speed access easier to use for end consumers, and more seamless to integrate into the existing infrastructure for carriers and ISPs, PPPoE could speed the widespread adoption of High speed access services

WAN Port IP Assignment: Select PPPoE.



Host Name: The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

WAN Port MAC: The default MAC Address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. It is not recommended that you change the default MAC address unless required by your ISP. The default MAC address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. You can use the "Clone MAC Address" button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the router.

Ping from WAN: While enable, it allows end user ping from WAN through internal to check the device working or not.

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU.

MRU: Maximum Receive Unit - you may need to change the MRU for optimal performance with your specific ISP. 1500 is the default MRU.

PPPoE Username: Enter your PPPoE user name.

PPPoE Password: Enter your PPPoE password and then retype the password in the next box.

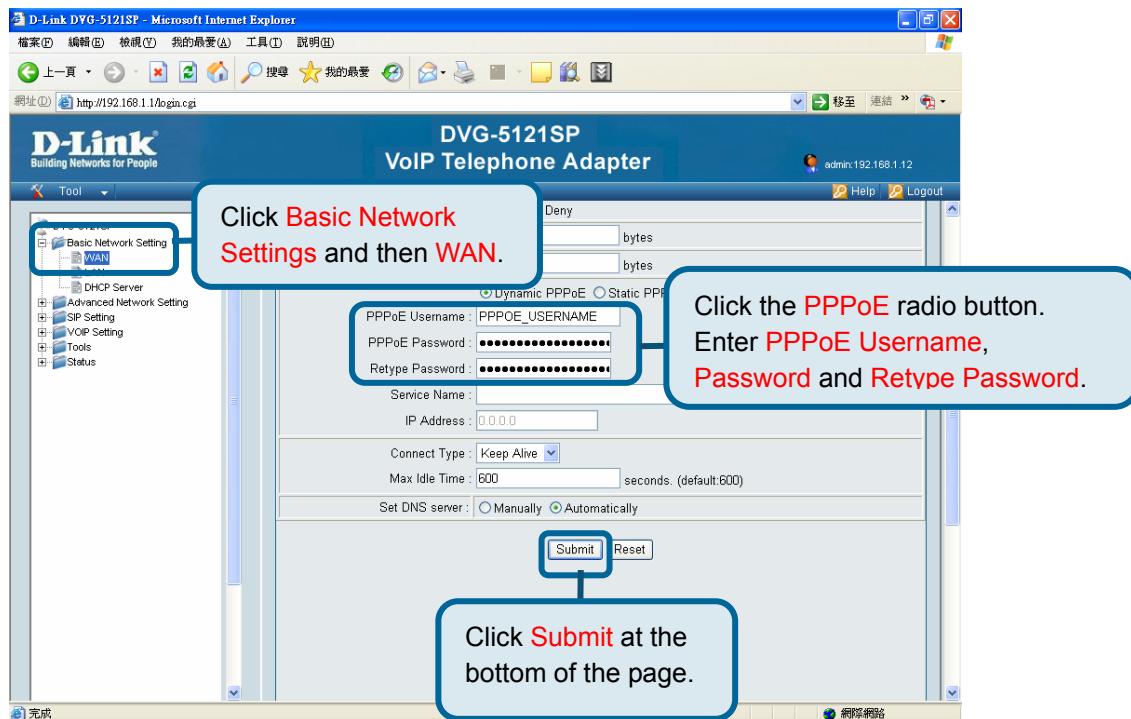
Service Name: Enter the ISP Service Name (optional).

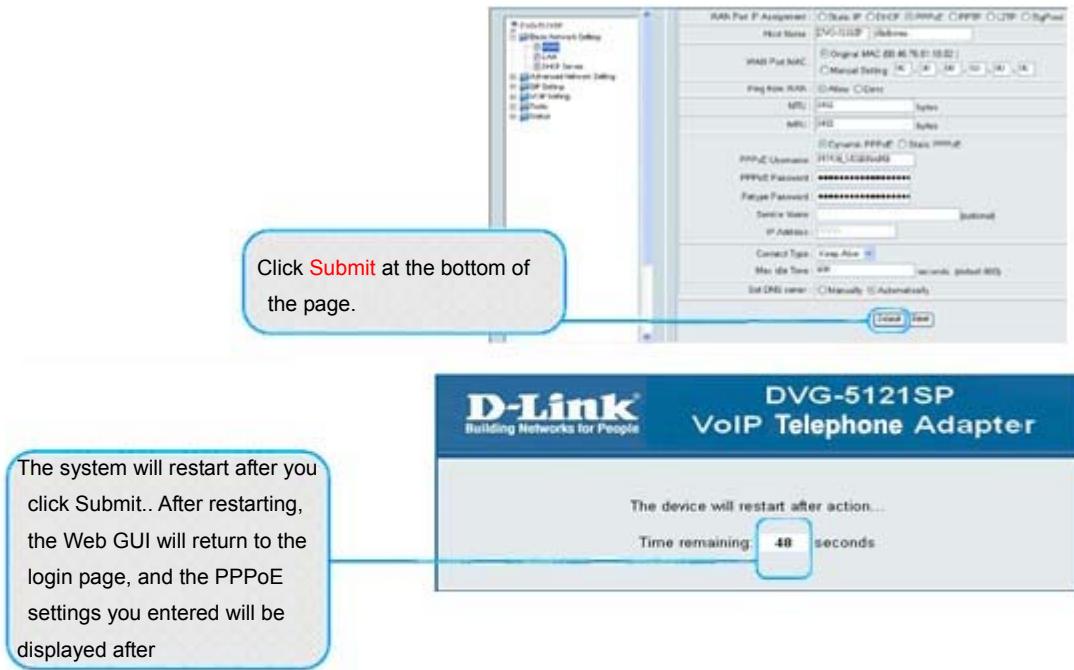
IP Address: Enter the IP address (Static PPPoE only).

Connect Type: Select either Keep Alive or Manual on.

Max Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect.

Set DNS server: Enter the Primary and Secondary DNS Server Addresses (Static PPPoE only).



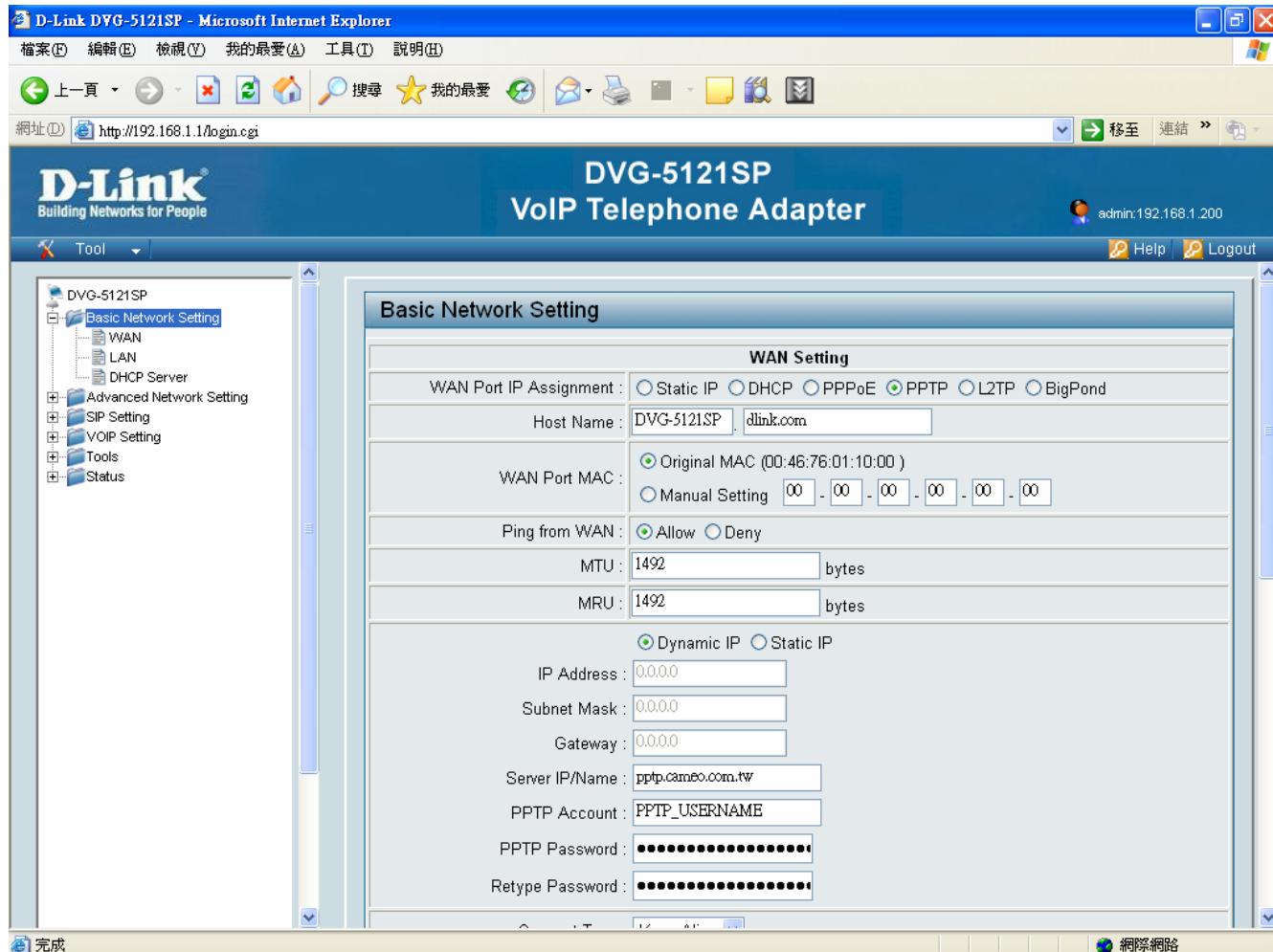


4-1-4. PPTP

PPTP stands for Point to Point Tunneling Protocol. It was developed by a consortium including Microsoft and is used for establishing VPN (Virtual Private Network) tunnels across the Internet. This allows remote users to securely and inexpensively access their corporate network from anywhere on the Internet.

PPTP uses a client-server model for establishing VPN connections. Most Microsoft operating systems ship with a PPTP client, so there is no need to purchase third-party client software. PPTP has the additional advantage over other VPN technologies of being easy to setup.

WAN Port IP Assignment: Select PPTP.



Host Name: The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

WAN Port MAC: The default MAC Address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. It is not recommended that you change the default MAC address unless required by your ISP. The default MAC address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. You can use the "Clone MAC Address" button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the router.

Ping from WAN: While enable, it allows end user ping from WAN through internal to check the device working or not.

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU.

MRU: Maximum Receive Unit - you may need to change the MRU for optimal performance with your specific ISP. 1500 is the default MRU.

IP Address: Enter the IP address (Static PPTP only).

Subnet Mask: Enter the Primary and Secondary DNS Server Addresses (Static PPTP only).

VoIP telephone adapter: Enter the VoIP telephone adapter IP Address provided by your ISP.

Server IP/Name: Enter the Server IP provided by your ISP (optional).

PPTP Account: Enter your PPTP account name.

PPTP Password: Enter your PPTP password and then retype the password in the next box.

Connect Type: Select either Keep Alive or Manual on.

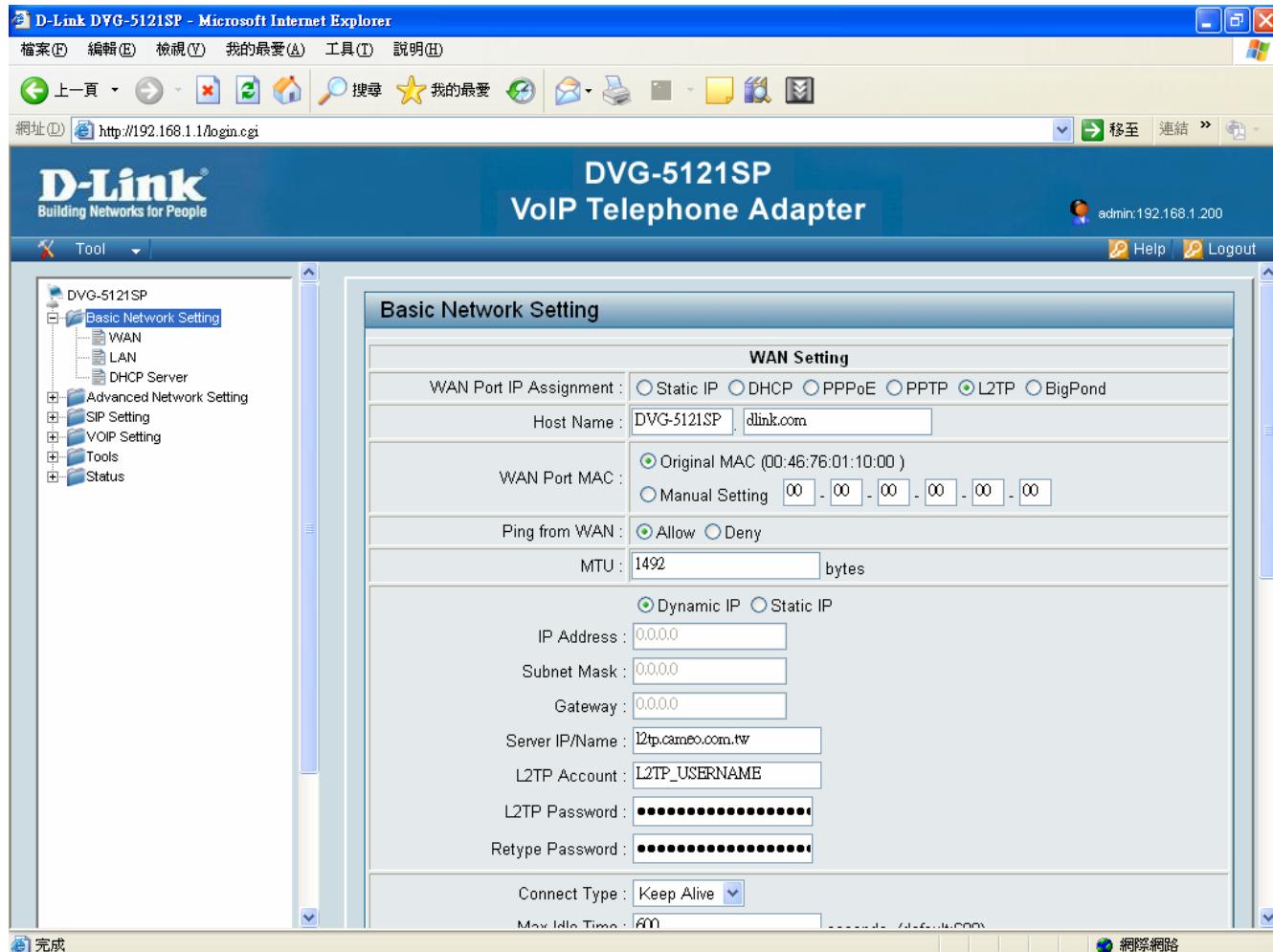
Max Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect.

Set DNS server: Enter the Primary and Secondary DNS Server Addresses.

4-1-5. L2TP

Layer Two Tunneling Protocol (L2TP) is an extension of the Point-to-Point Tunneling Protocol (PPTP) used by an Internet service provider (ISP) to enable the operation of a virtual private network (VPN) over the Internet.

WAN Port IP Assignment: Select L2TP.



Host Name: The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

WAN Port MAC: The default MAC Address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. It is not recommended that you change the default MAC address unless

required by your ISP. The default MAC address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. You can use the "Clone MAC Address" button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the router.

Ping from WAN: While enable, it allows end user ping from WAN through internal to check the device working or not.

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1492 is the default MTU.

IP Address: Enter the IP address (Static L2TP only).

Subnet Mask: Enter the Primary and Secondary DNS Server Addresses (Static L2TP only).

VoIP telephone adapter: Enter the VoIP telephone adapter IP Address provided by your ISP.

Server IP/Name: Enter the Server IP provided by your ISP (optional).

L2TP Account: Enter your L2TP account name.

L2TP Password: Enter your L2TP password and then retype the password in the next box.

Connect Type: Select either Keep Alive or Manual on.

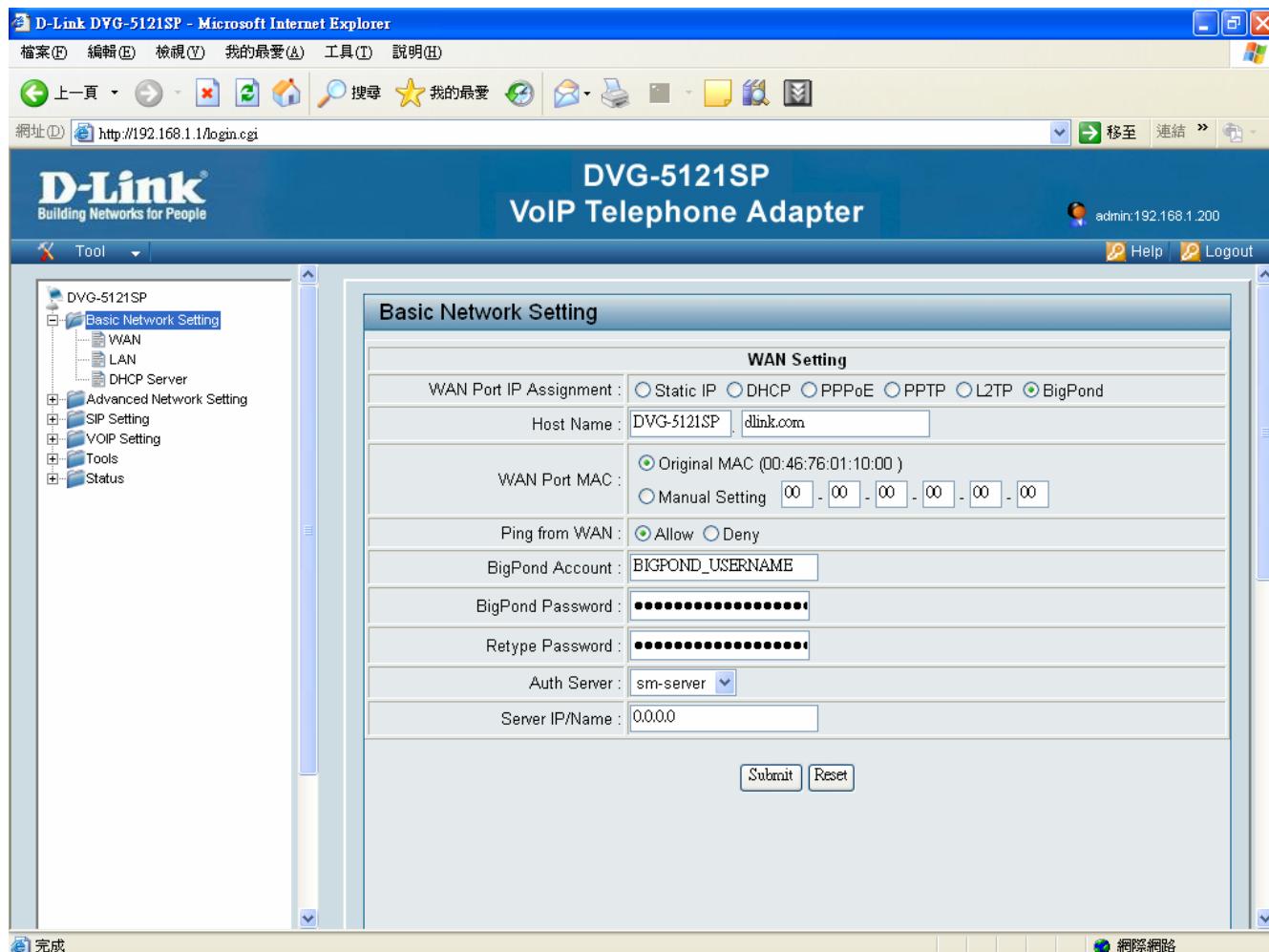
Max Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect.

Set DNS server: The DNS server information will be supplied by your ISP (Internet Service Provider.)

4-1-6. Big Pond

This service is supported in Australia only.

WAN Port IP Assignment: Big Pond.



Host Name: The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

WAN Port MAC: The default MAC Address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. It is not recommended that you change the default MAC address unless required by your ISP. The default MAC address is set to the WAN's physical interface MAC address on the VoIP telephone adapter. You can use the "Clone MAC Address" button to copy the

MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the router.

Ping from WAN: While enable, it allows end user ping from WAN through internal to check the device working or not.

BigPond Account: Enter your Big Pond user name.

BigPond Password: Enter your Big Pond password and then retype the password in the next box.

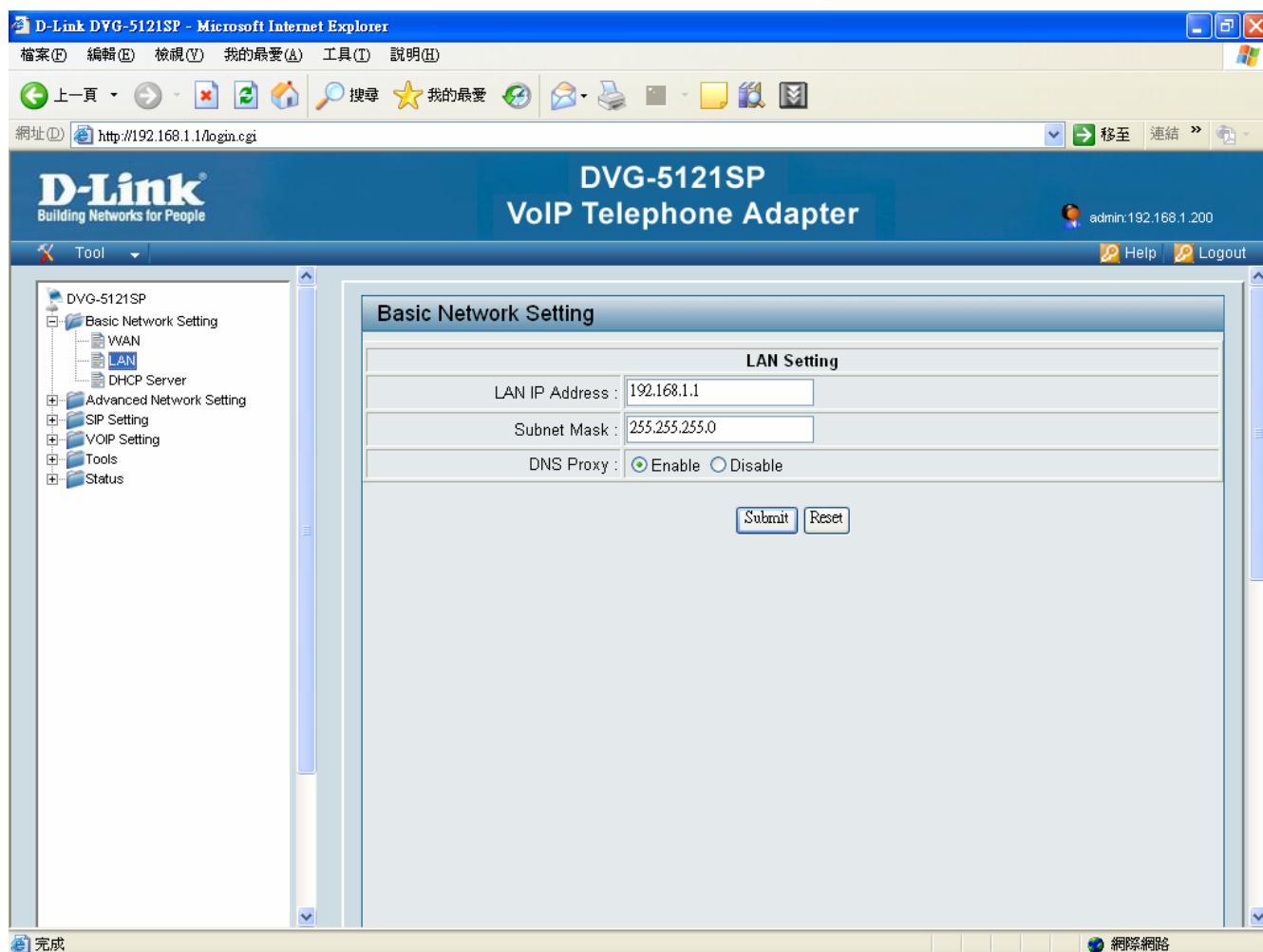
Auth Server: Enter the IP address of the login server.

Server IP/Name: Enter the IP address of the login server.

4-2. LAN

LAN setting

This section will allow you to change the local network settings of the router and to configure the DHCP settings.

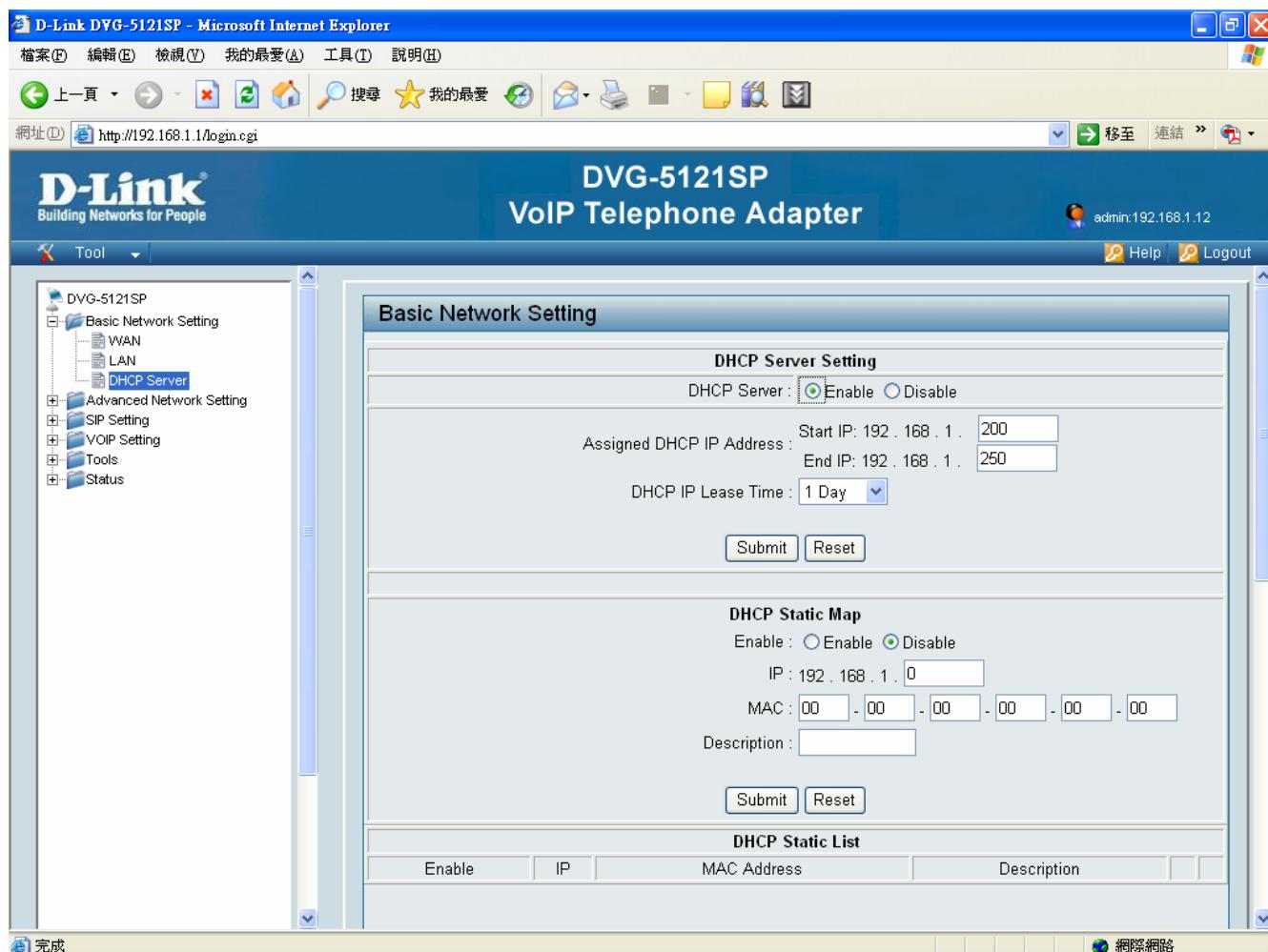


LAN IP Address: Enter the IP address of the router. The default IP address is 192.168.1.1. If you change the IP address, once you click Apply, you will need to enter the new IP address in your browser to get back into the configuration.

Subnet Mask: Enter the Subnet Mask. The default subnet mask is 255.255.255.0.

DNS Proxy: Check the box to transfer the DNS server information from your ISP to your computers. If unchecked, your computers will use the router for a DNS server.

4-3. DHCP Server



4-3-1. DHCP Server setting

stands for *Dynamic Host Control Protocol*. The DVG-5121SP has a built-in DHCP server.

The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to “Obtain an IP Address Automatically.” When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the DVG-5121SP. The DHCP Server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.

DHCP Server- Select **Enabled** or **Disabled**. The **default** setting is **Enabled**.

Assigned DHCP IP Address- Set the starting IP address and the ending IP address for the DHCP server's IP assignment

Lease Time- The length of time for the IP lease. Enter the Lease time. The default setting is one hour

4-3-2. DHCP static Map

DHCP Static Map- Select **Enabled** or **Disabled**. The **default** setting is **Disable**.

IP- Enter the IP address of the client.

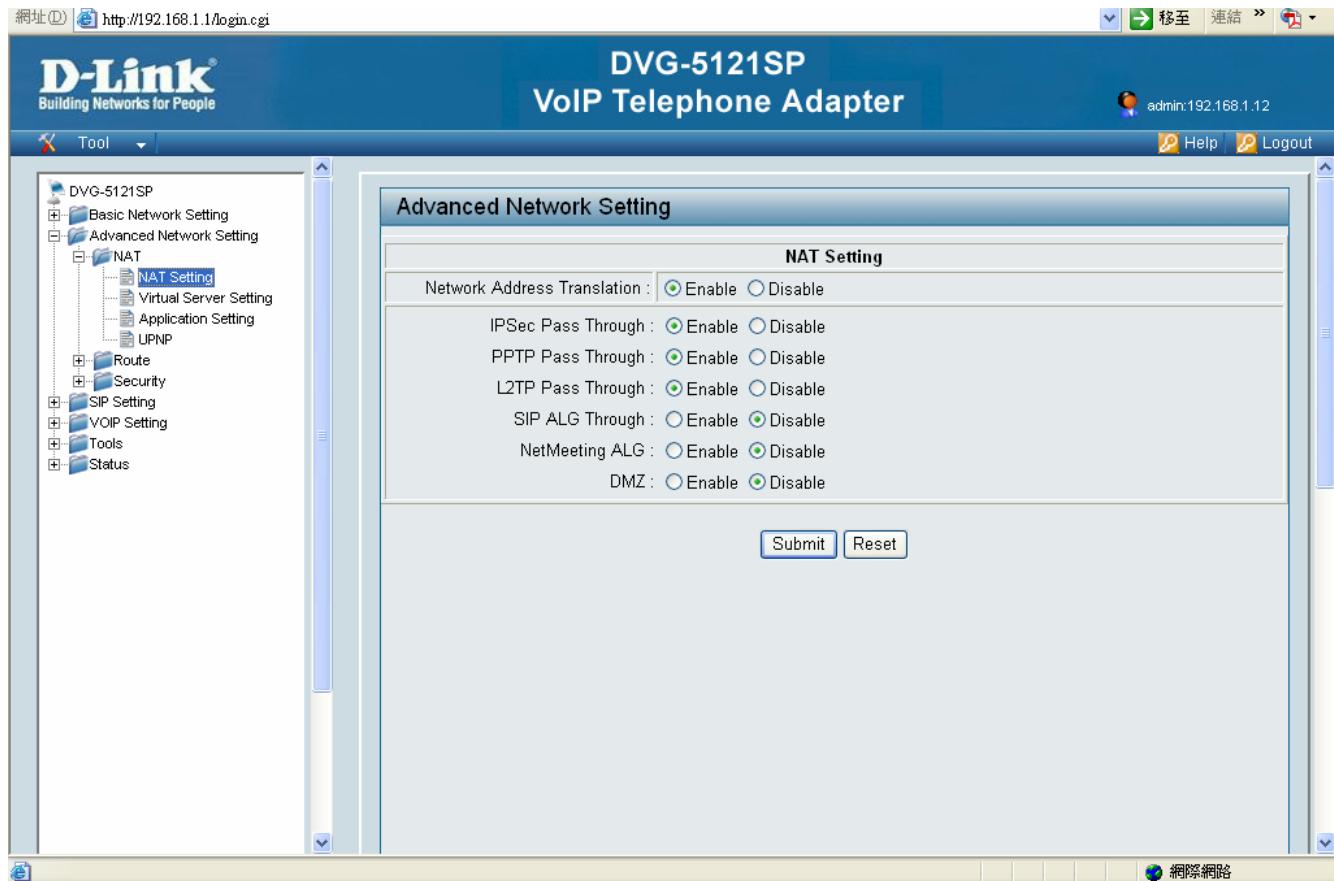
MAC- Enter the MAC address of the client.

Description- Enter any description if user wants to separate from other client

5. Advance Network Settings

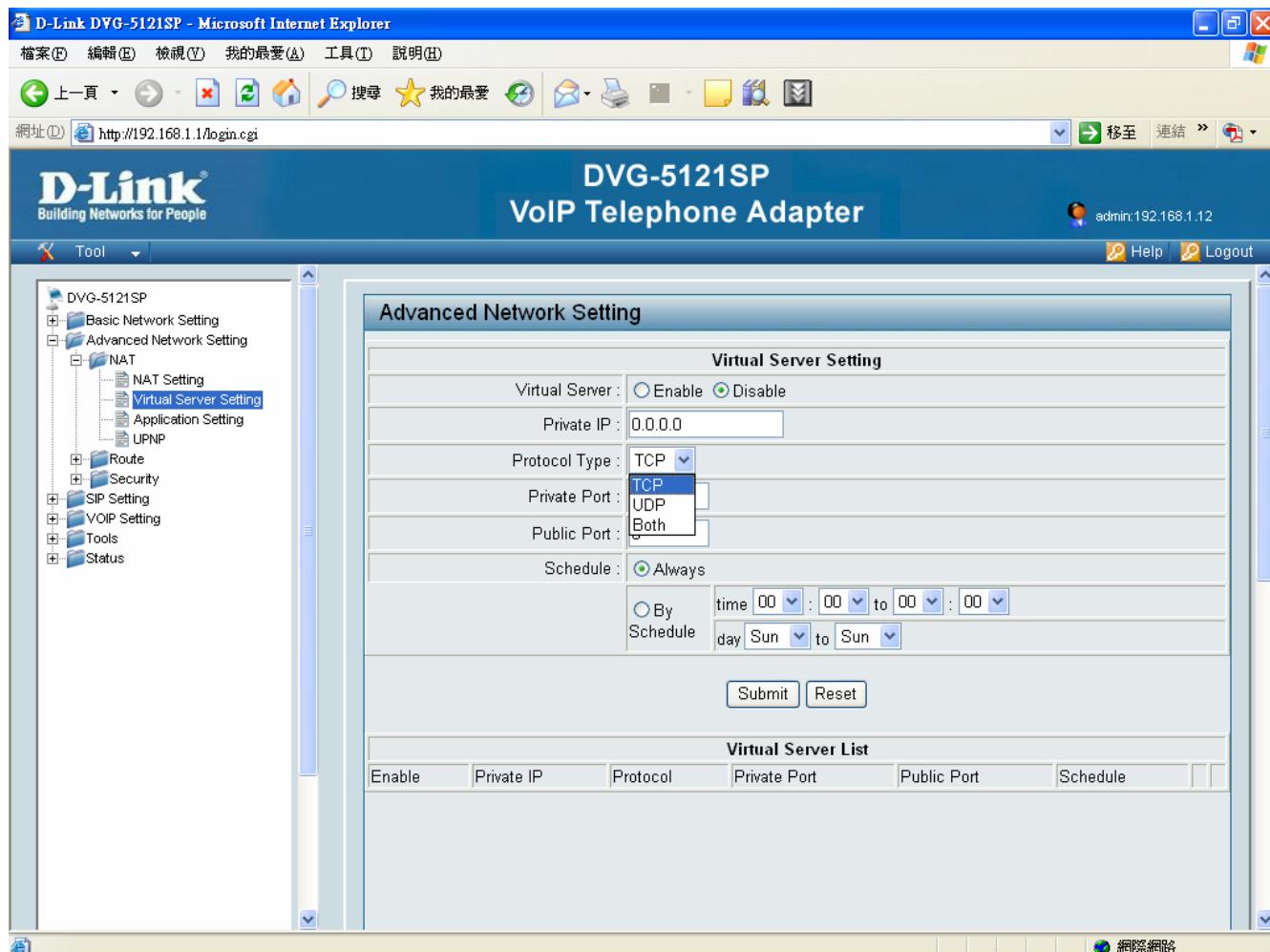
5-1. NAT

NAT Setting



NAT Setting- User can choose what kind of NAT type need to support in this page.

5-2. Virtual Server Setting



Virtual Server- Select Enabled or Disabled

Name- Enter the name referencing the virtual service

Private IP- The server computer in the LAN (Local Area Network) that will be providing the virtual services.

Protocol Type- The protocol used for the virtual service

Public Port- The port number on the WAN (Wide Area Network) side will be used to access the virtual service.

Private Port- The port number of the service used by the Private IP computer

Schedule- The schedule of time when the virtual service will be enabled. The schedule may be set to **Always**, which will allow the particular service to always be enabled. If it is set to **Time**, select the time frame for the service to be enabled. If the system time is outside of the scheduled time, the service will be disabled.

Example #1:

If you have a Web server that you wanted Internet users to access at all times, you would need to enable it. Web (HTTP) server is on LAN (Local Area Network) computer 192.168.0.25. HTTP uses port 80, TCP.

Name: Web Server

Private IP: 192.168.0.25

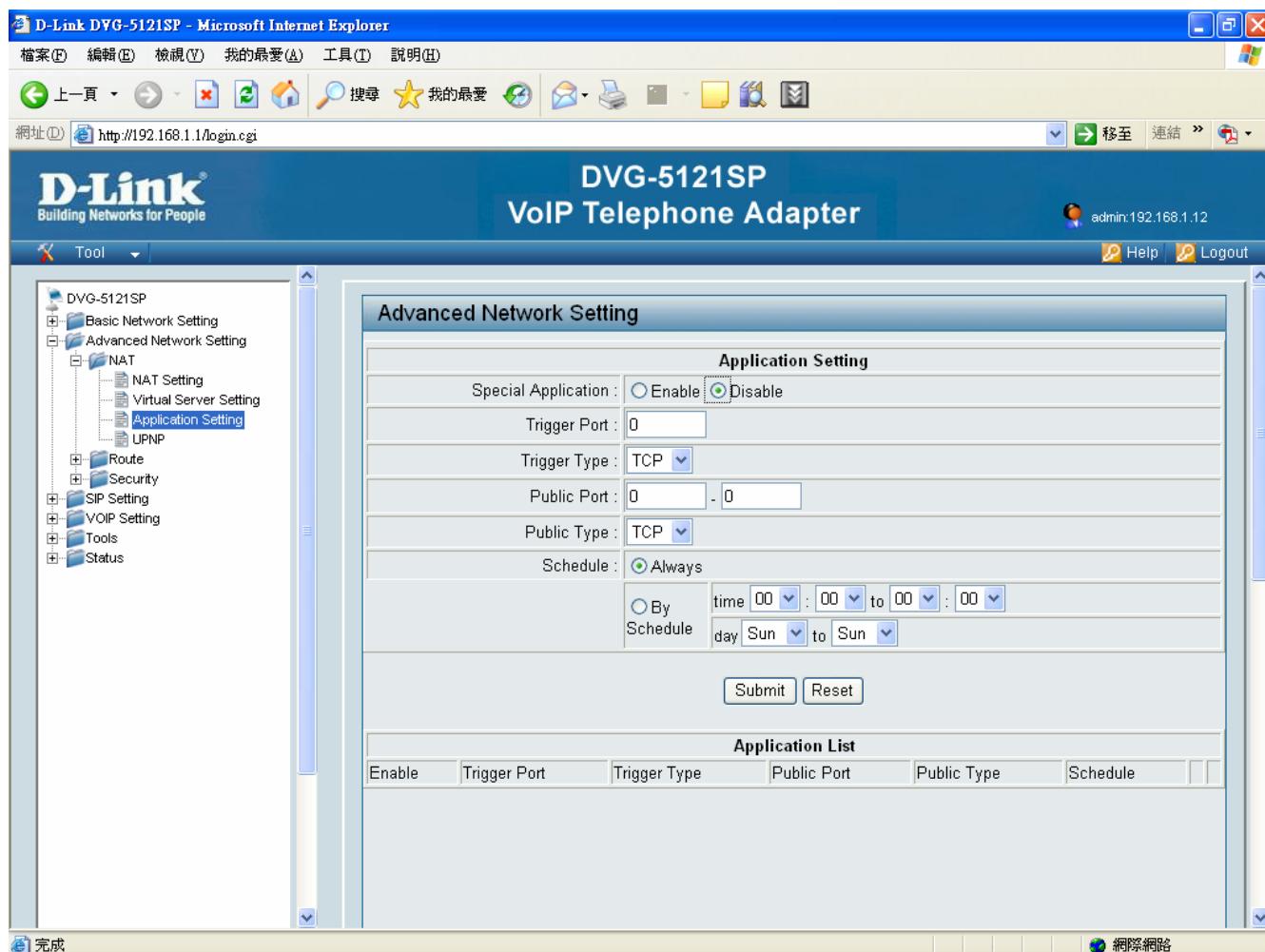
Protocol Type: TCP

Private Port: 80

Public Port: 80

Schedule: always

5-3. Application Setting



Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the DVG-5121SP. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the public ports associated with the trigger port to open them for inbound traffic. The DVG-5121SP provides some predefined applications in the table on the bottom of the web page. Select the application you want to use and enable it.

Note! Only one PC can use each Special Application tunnel.

Name: This is the name referencing the special application.

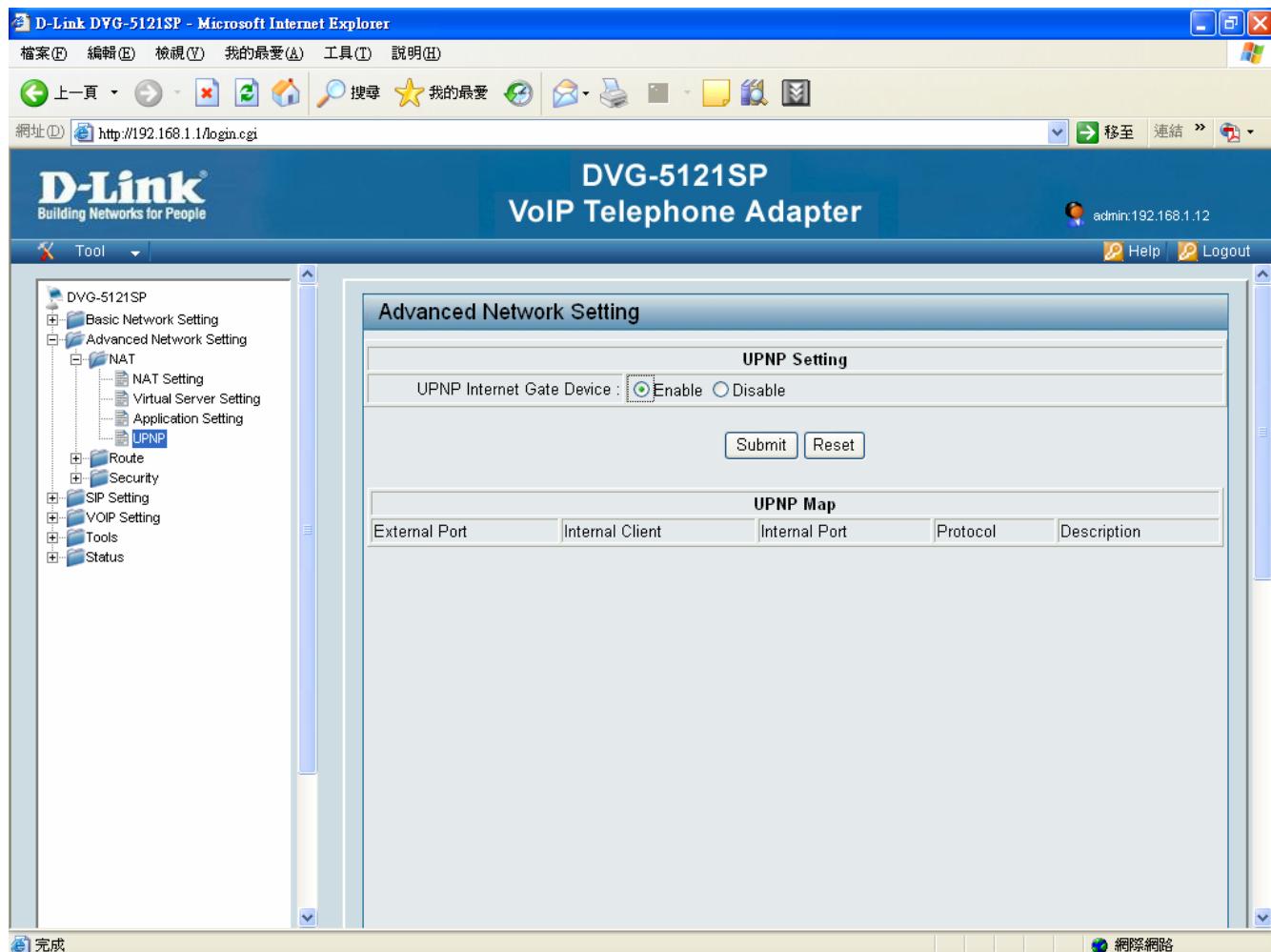
Trigger Port: This is the port used to trigger the application. It can be either a single port or a range of ports.

Trigger Type: This is the protocol used to trigger the special application.

Public Port: This is the port number on the WAN side that will be used to access the application. You may define a single port or a range of ports. You can use a comma to add multiple ports or port ranges.

Public Type: This is the protocol used for the special application.

5-4. UPNP Setting



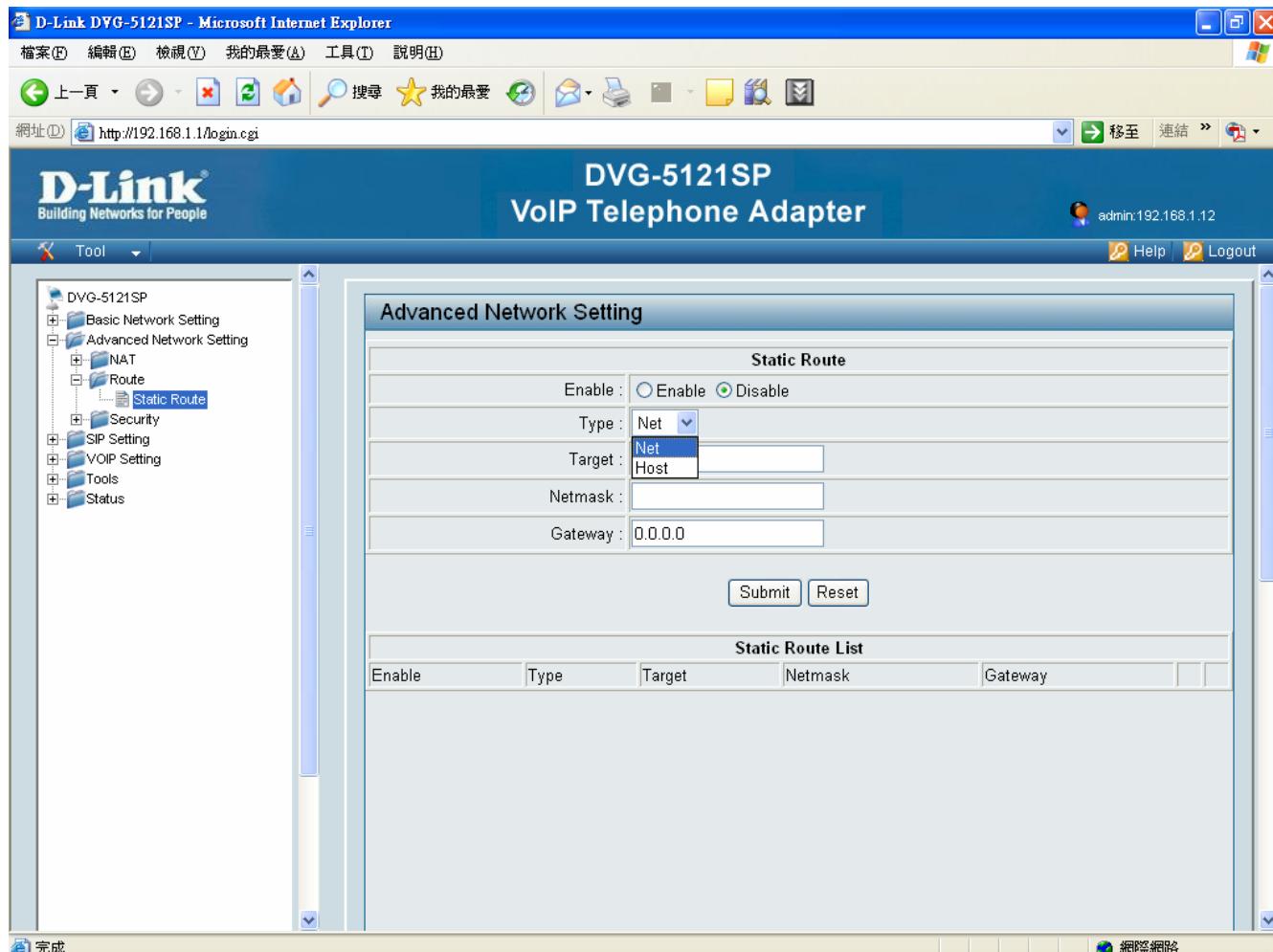
Choose UPNP function status.

UPNP

use the *Universal Plug and Play* feature click on **Enabled**. UPNP provides compatibility with networking equipment, software and peripherals of the over 400 vendors that cooperate in the Plug and Play forum.

5-5. Route

Static Route



If the WAN of the IP sharing device has static IP address, then the NAT IP address is set as the Public IP address of the IP sharing.

Static Route- Select Enabled or Disabled

Type- Choose net or host to do the settings

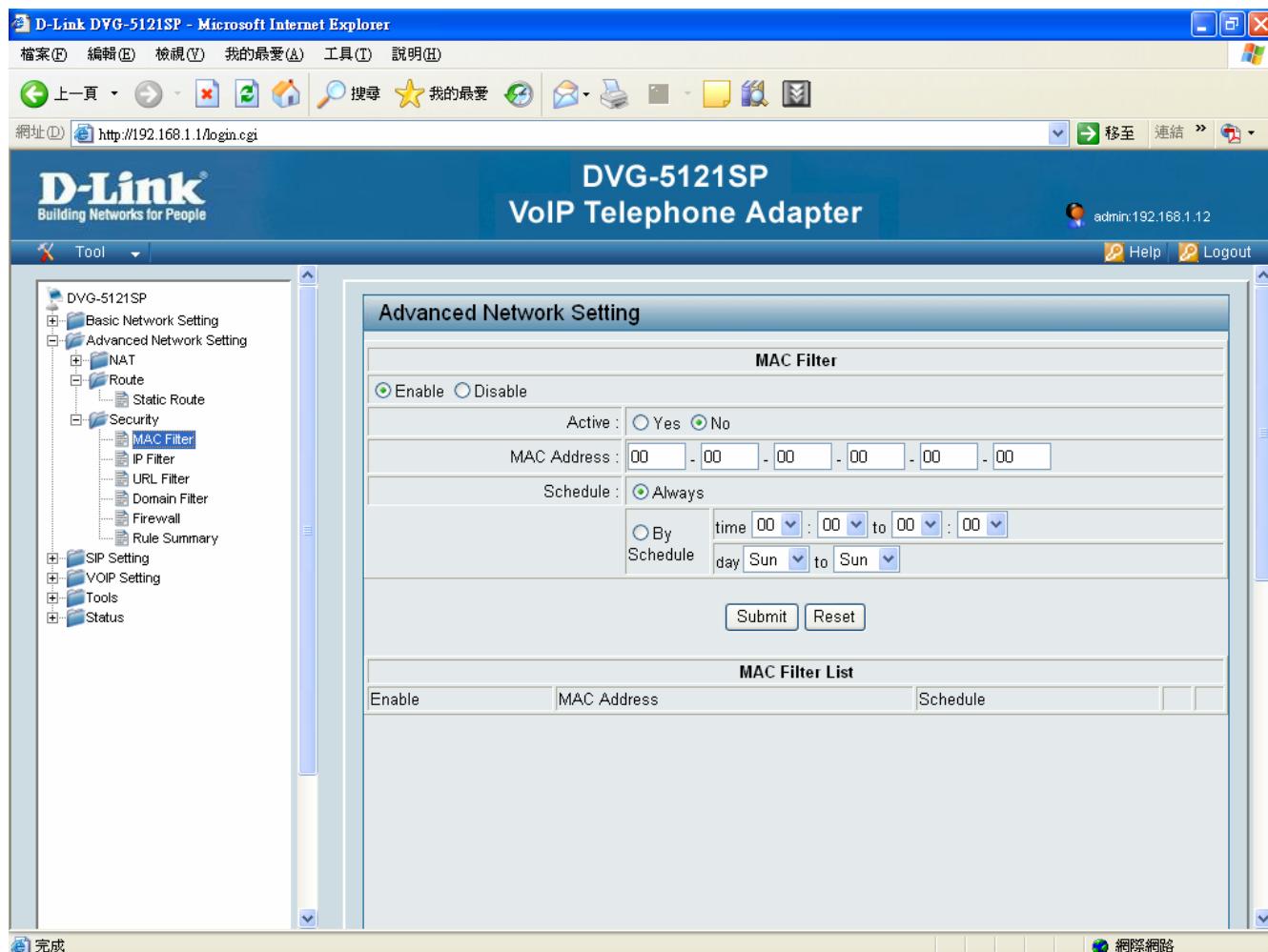
Target- Input the public IP Address provided by ISP or server

Subnet Mask- Input your Subnet mask. (All devices in the network must have the same subnet mask.)

VoIP telephone adapter: Enter the VoIP telephone adapter IP Address provided by your ISP.

5-6. Security

5-6-1. MAC filter



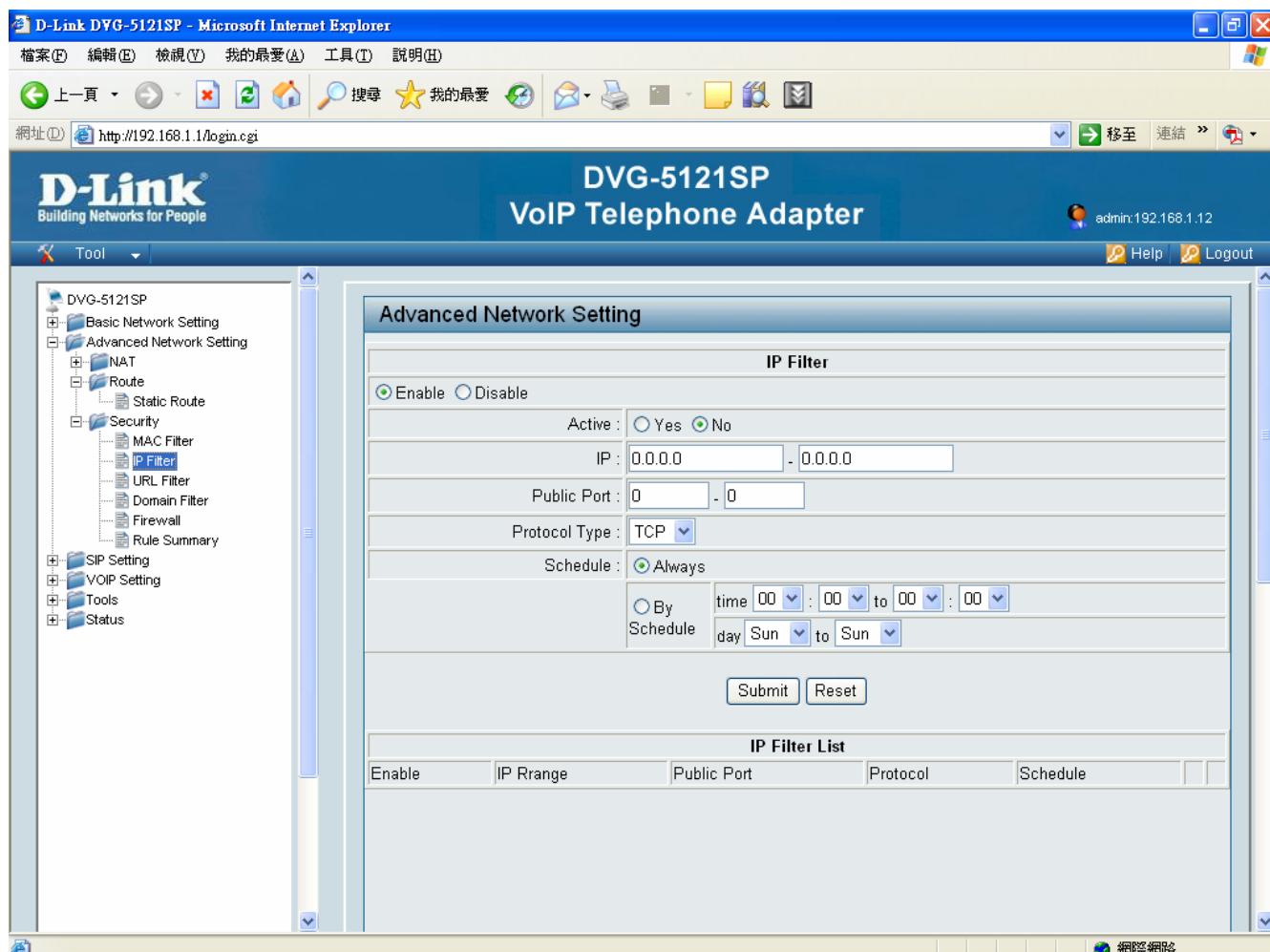
Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers by their MAC addresses from accessing the Network. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the Broadband Router.

MAC Filters- Choose **Disable** MAC filters; **allow** MAC addresses listed below; or **deny** MAC addresses listed below.

MAC Address- Enter the MAC Address.

Schedule- Select **Always** or enter the **Time Range**.

5-6-2. IP Filter



Filters are used to deny or allow LAN (Local Area Network) computers from accessing the Internet. The DVG-5121SP can be setup to deny internal computers by their IP or MAC addresses. The DVG-5121SP can also block users from accessing restricted web sites. This is the schedule of time when the IP Filter will be enabled.

IP Filters- Use IP Filters to deny LAN IP addresses from accessing the Internet. You can deny specific port numbers or all ports for the specific IP address.

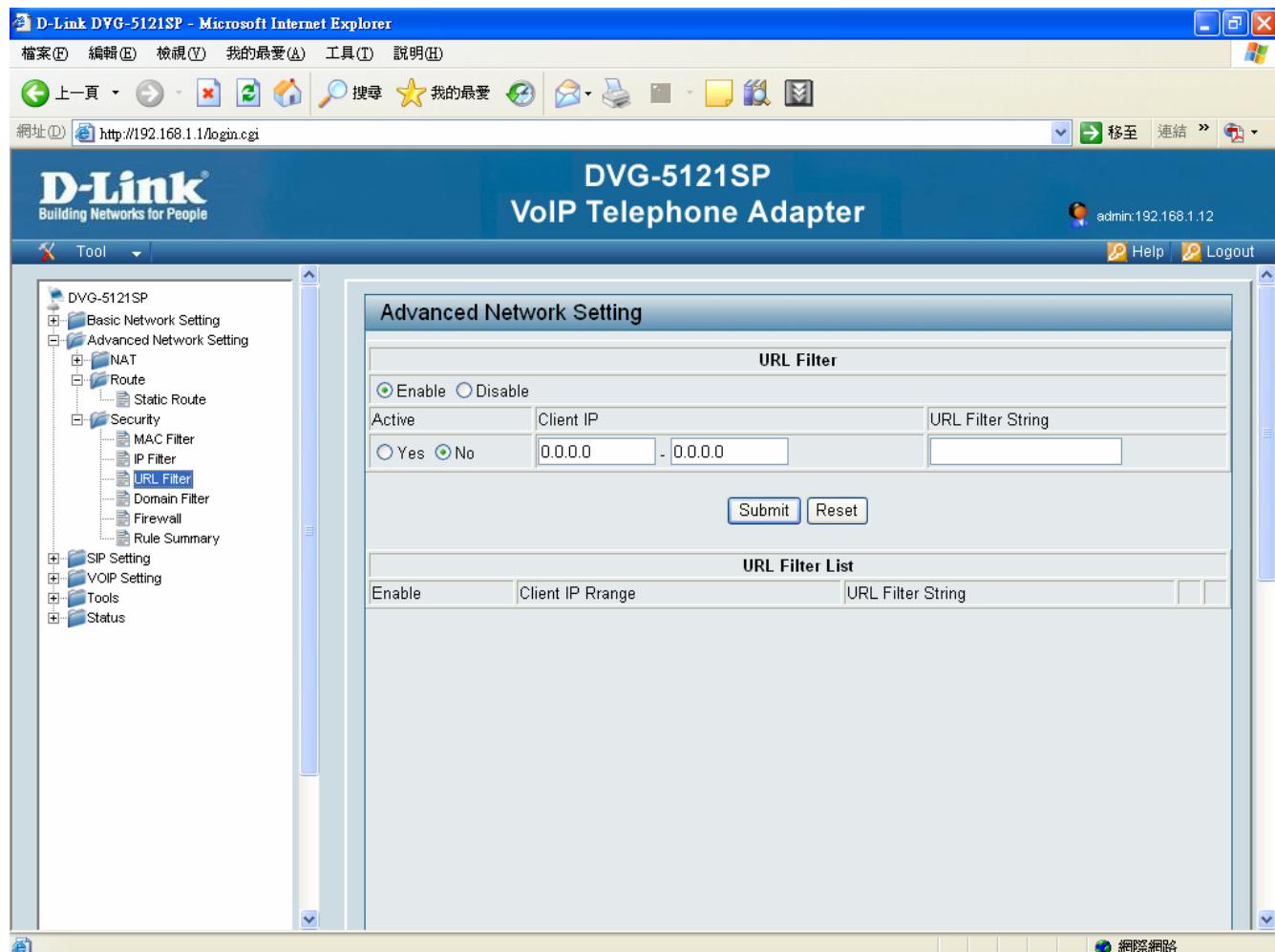
IP- The IP address of the LAN computer will be denied access to the Internet.

Port- The single port or port range that will be denied access to the Internet.

Protocol Type- Select the protocol type

Schedule- This is the schedule of time when the IP Filter will be enabled.

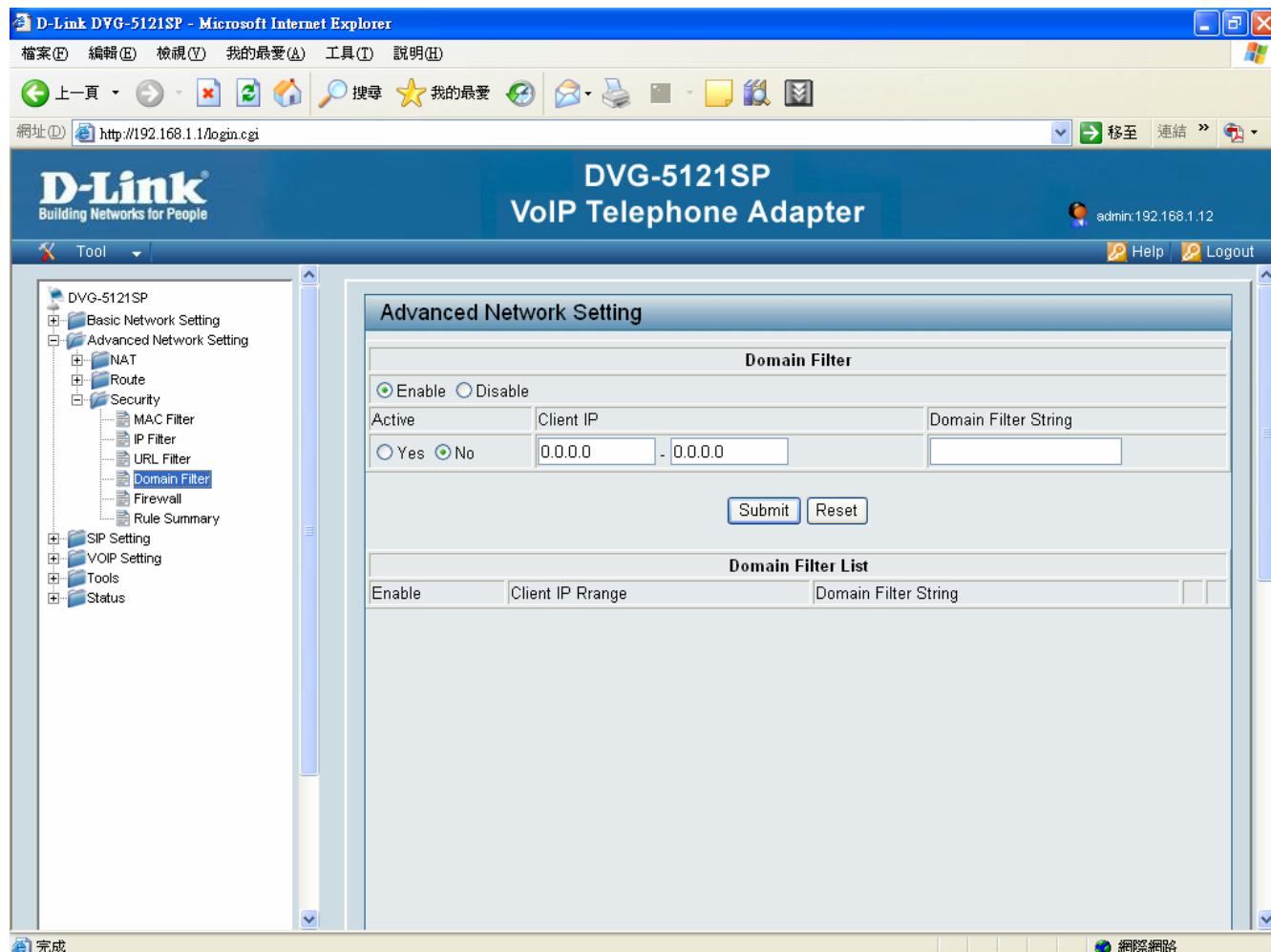
5-6-3. URL Filter



URL Filter- Select Enabled or Disabled.

Fill up with the start IP you would like to allow/deny.

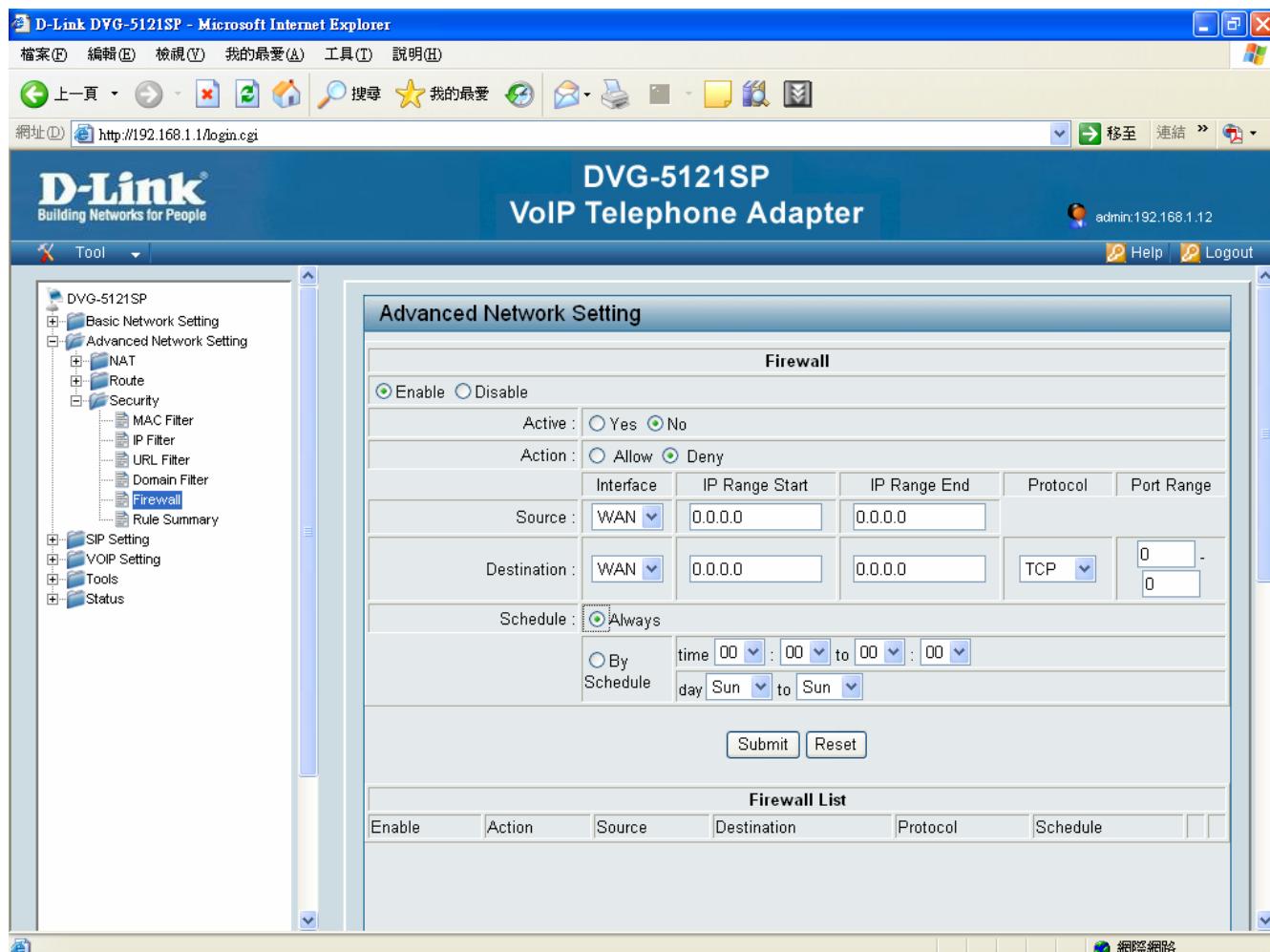
5-6-4. Domain Filter



Domain filter- Select Enabled or Disabled.

Fill up with the IP range you would like to allow/deny.

5-6-5. Firewall



Firewall- Select Enabled or Disabled.

Active- Select Yes or No

Action- Select Allow or Deny

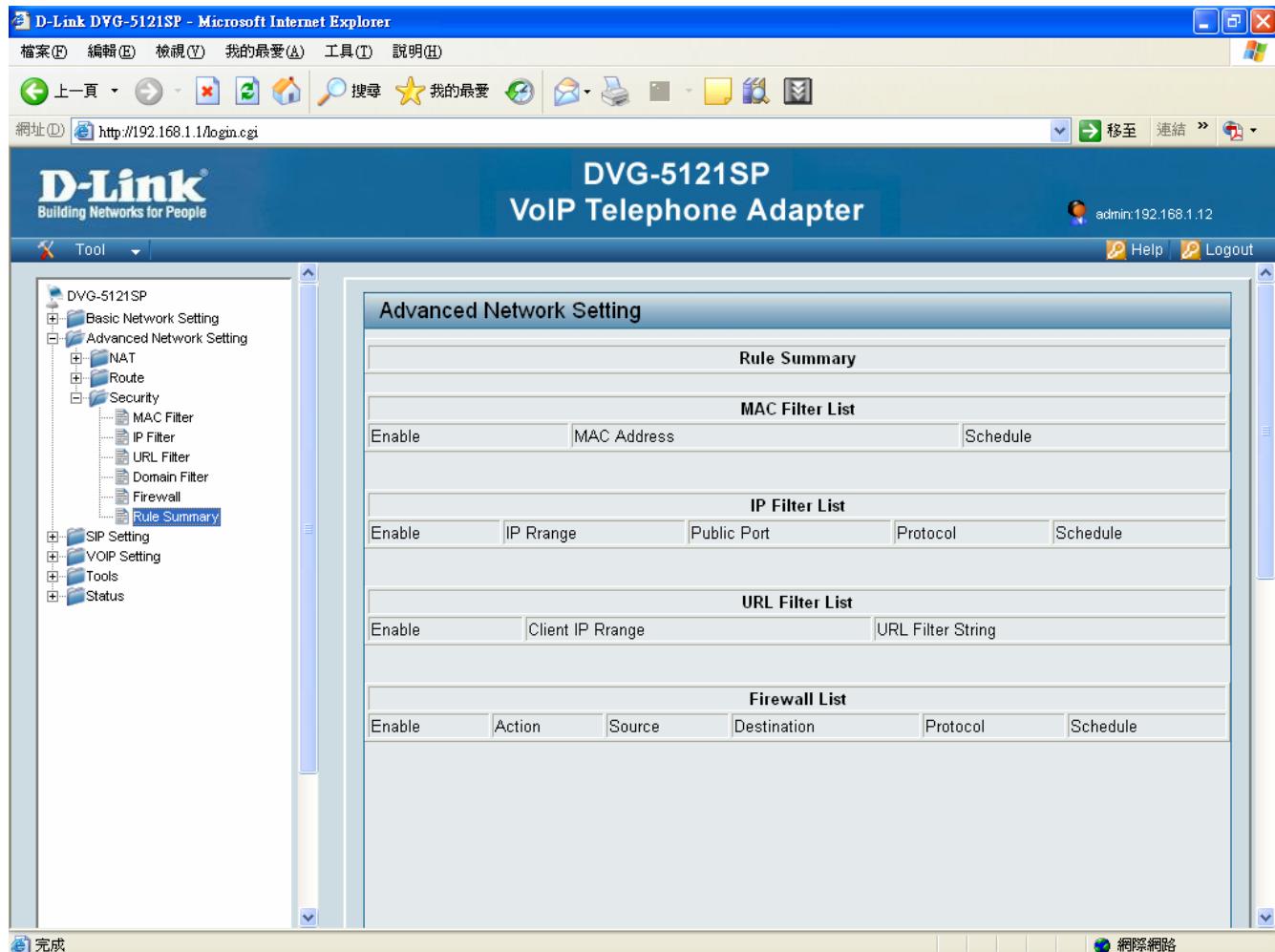
Source- Choose **WAN** or **LAN** as the **Source** and enter a range of IP Addresses out on the internet that you would like this rule applied to. enter the IP Address of the computer on your local network that you want to allow the incoming service to. This will not work with a range of IP Addresses.

Destination- Select **LAN** or **WAN** as the **Destination** and enter the IP Address of the computer on your local

network that you want to allow the incoming service to. This will not work with a range of IP Addresses. Enter the port or range of ports that are required to be open for the incoming service.

Schedule- This is the schedule of time when the IP Filter will be enabled.

5-6-6. Rule Summary



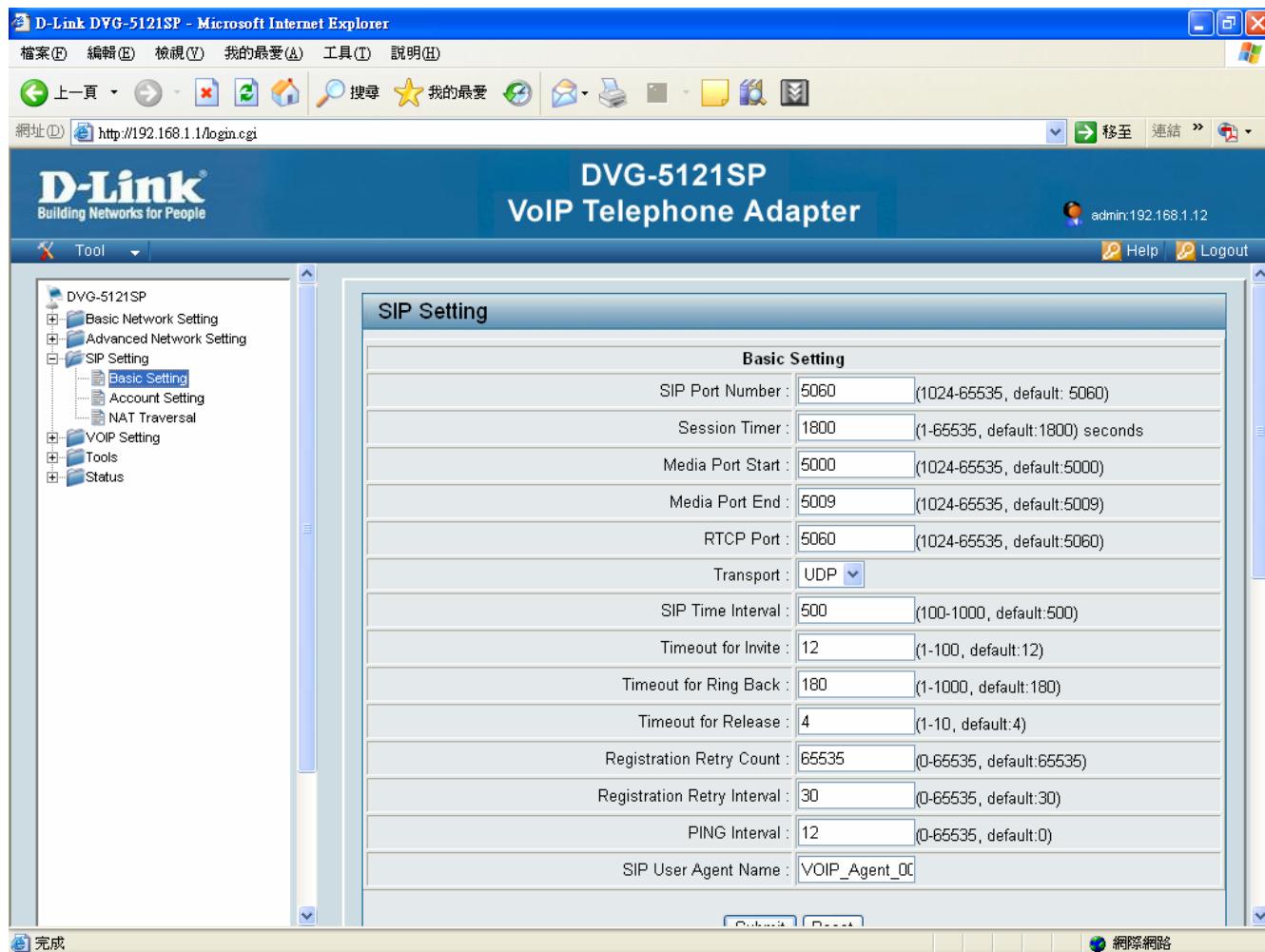
The screenshot shows the DVG-5121SP VoIP Telephone Adapter's web-based configuration interface. The left sidebar contains a navigation tree with the following structure:

- DVG-5121SP
 - Basic Network Setting
 - Advanced Network Setting
 - NAT
 - Route
 - Security
 - MAC Filter
 - IP Filter
 - URL Filter
 - Domain Filter
 - Firewall
 - Rule Summary
 - SIP Setting
 - VOIP Setting
 - Tools
 - Status

Check all security setting rule summary in this page.

6. SIP Setting

6-1. Basic Setting:



The screenshot shows the 'SIP Setting' configuration page for the DVG-5121SP. The left sidebar shows a navigation tree with 'SIP Setting' selected. The main panel is titled 'SIP Setting' and contains a 'Basic Setting' table with the following parameters:

Basic Setting	
SIP Port Number :	5060 (1024-65535, default: 5060)
Session Timer :	1800 (1-65535, default:1800) seconds
Media Port Start :	5000 (1024-65535, default:5000)
Media Port End :	5009 (1024-65535, default:5009)
RTCP Port :	5060 (1024-65535, default:5060)
Transport :	UDP
SIP Time Interval :	500 (100-1000, default:500)
Timeout for Invite :	12 (1-100, default:12)
Timeout for Ring Back :	180 (1-1000, default:180)
Timeout for Release :	4 (1-10, default:4)
Registration Retry Count :	65535 (0-65535, default:65535)
Registration Retry Interval :	30 (0-65535, default:30)
PING Interval :	12 (0-65535, default:0)
SIP User Agent Name :	VOIP_Agent_00

SIP Port Number - also called an outbound proxy, handles SIP call signaling as a standard SIP proxy server. It receives and transmits phone conversation traffic (media) in between two talking VoIP telephone adapters. This option tells the VoIP telephone adapter to send and receive all SIP packets to the destined outbound proxy server rather than the remote VoIP telephone adapter. This helps VoIP calls to pass through any NAT protected network without additional settings or techniques. Please make sure your VoIP service provider supports outbound proxy services before enable it. Default setting: 5060

Session Timer- It is to avoid the billing of abnormal dropping the call because of Internet. The default is disabled.

Default: 1800 seconds

Media Port Start- Type the beginning of the listening port range

Media Port End- Type the end of the listening port range

RTCP Port- is mainly used to feed the streaming server with reception statistics from the client. The server may then decide to use these statistics (such as the numbers of lost packets, the delay from reception,) to adapt its strategy. Default : 5060

Transport- Choose UDP or TCP

SIP Time Interval- Enter the desired time interval which the VoIP telephone adapter will report to Proxy Server

SIP refresh time- Enter the desired refresh time which the VoIP telephone adapter will refresh status to Proxy Server. Default: 500

Timeout for Invite- Time for server invite the clients to connect. Default: 12

Timeout for Release- Set the VoIP telephone adapter respond releasing time from server. Default: 4

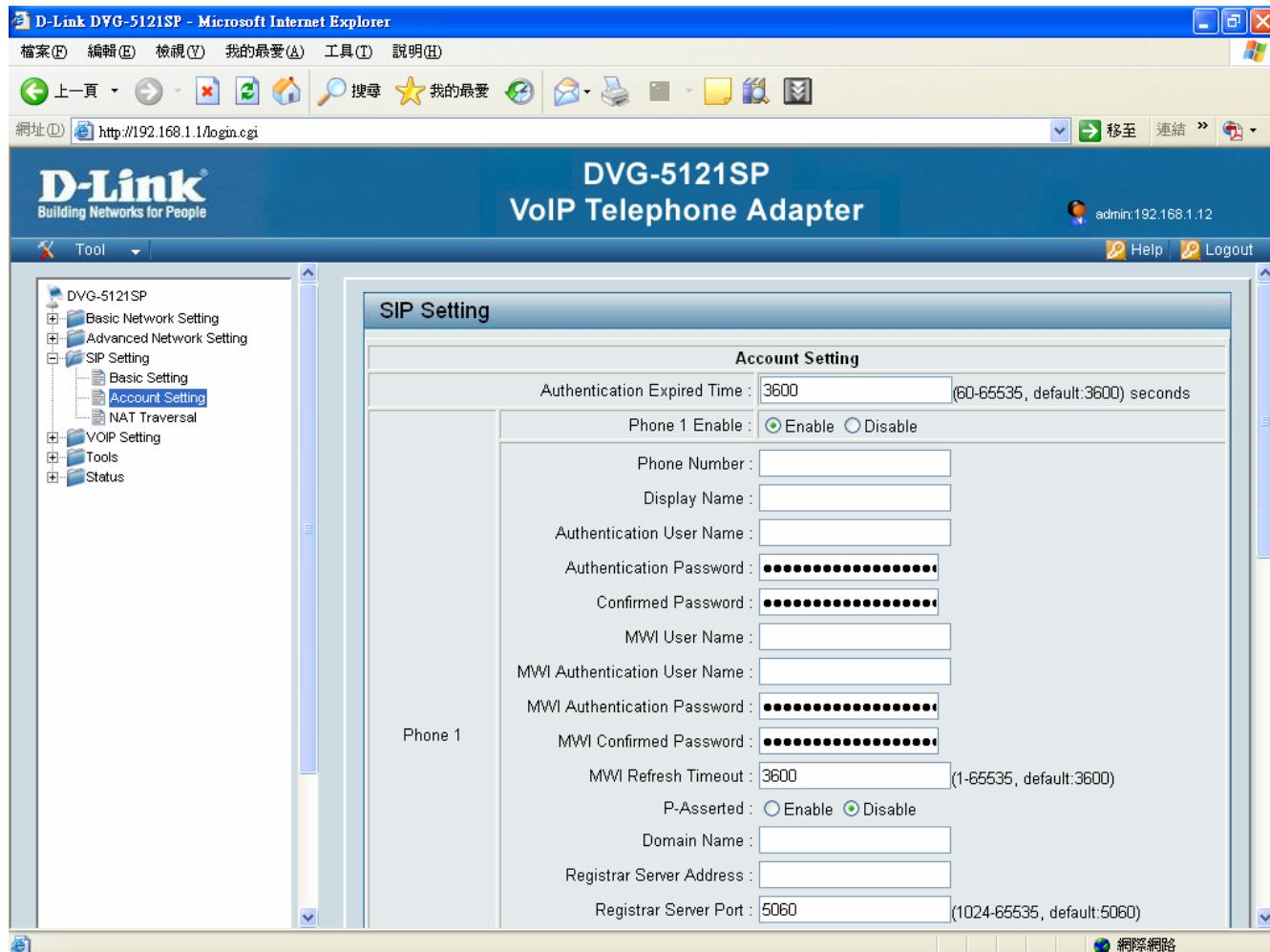
Registration Retry Count- Retry Count timing. Default: 65535

Registration Retry Interval- Time between per retry connection. Default: 30

PING Interval- Time between ping packet. Default: 0

SIP User Agent Name- Default: VOIP_Agent_001

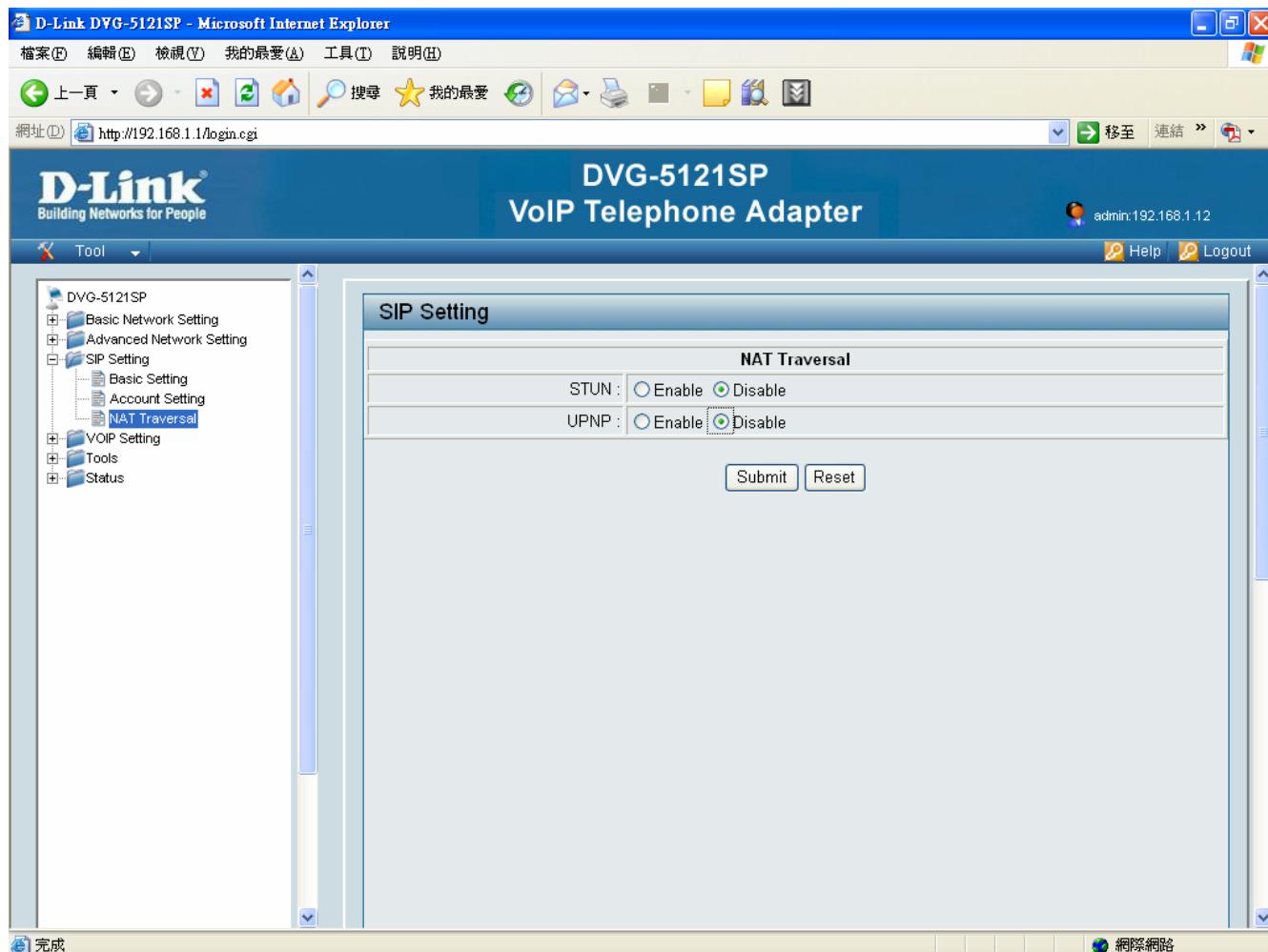
6-2. Account Setting:



Authentication Expired Time- Time for authentication expired. Default: 3600 seconds

Invite with ID / Account- DVG-5121SP can be invited to a VoIP trunk VoIP telephone adapter w/o register to a Proxy. Please contact your ITSP

6-3. NAT traversal:

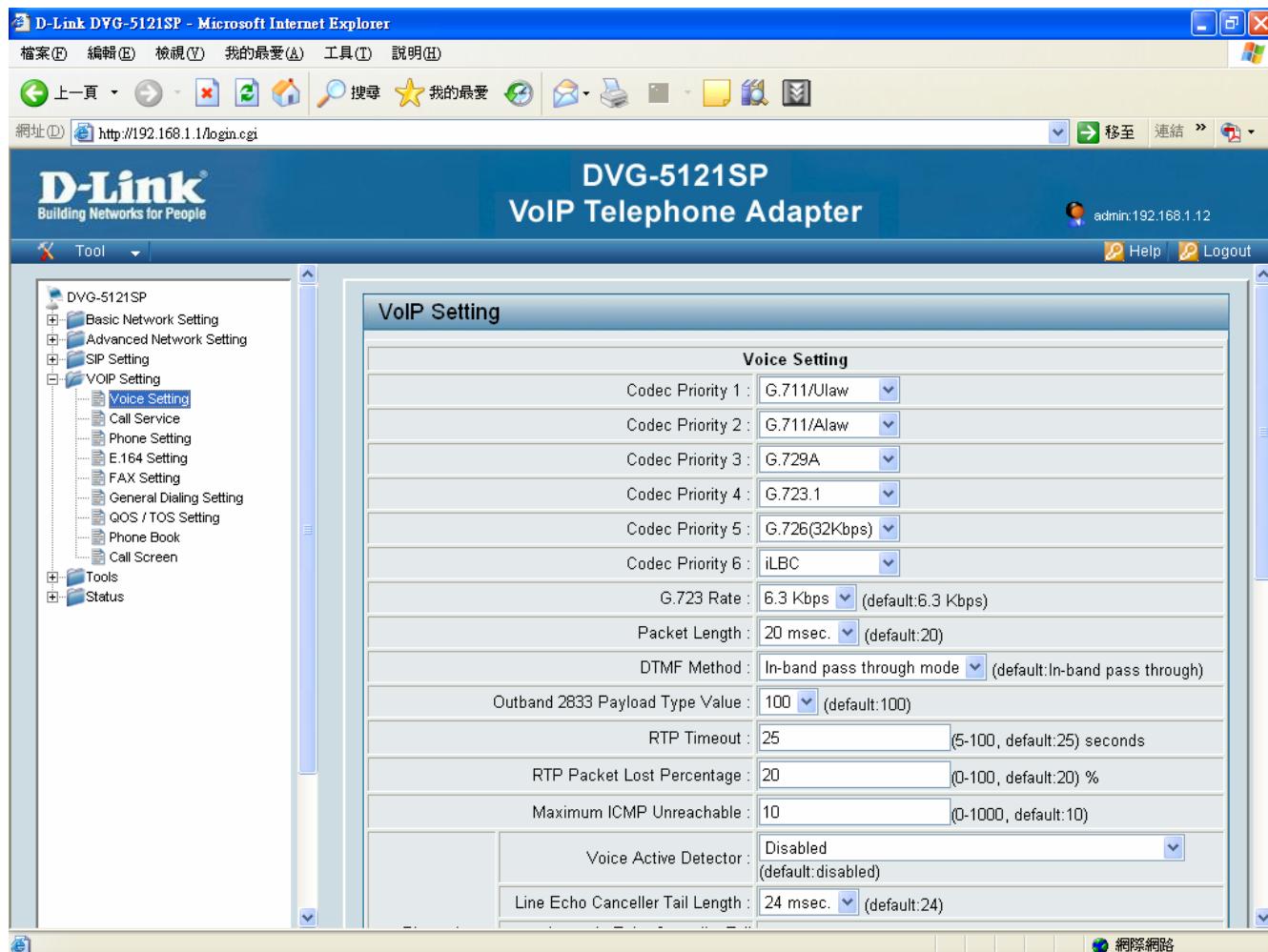


Enable STUN- Using STUN protocol prevents problems with setting the IP sharing function, but some NAT do not support this protocol.

Enable UPnP- To enable the VoIP telephone adapter's IP traffic to pass through a NAT server. This function only works when the NAT server supports UPnP and has it enabled.

7. VOIP Setting

7-1. Voice Setting:



Codec Priorities- Use this field to select the type of voice coder/decoder (codec) priority you want to use.

G.711/ Ulaw: Operates at 64 Kbps (standard), 56 Kbps, and 48 Kbps (non-standard).

Compresses frames of 14-bit linear PCM samples into frames of 8-bit logarithmic PCM code words.

G.711/ Alaw: Operates at 64 Kbps (standard), 56 Kbps, and 48 Kbps (non-standard).

Compresses 13-bit linear PCM samples into 8-bit logarithmic PCM code words.

G723.1: Operates at 6.3 Kbps and 5.3 Kbps. compression and decompression of 8 kHz speech signals.

G726: Operates at 40, 32, 24, and 16 Kbps.

G.729A: Operates on 10ms frames with short algorithm delays.

Compresses 8 kHz CODEC or linear audio data to 8 kbps.

iLBC: Internet Low Bit Rate Codec (iLBC) is a royalty free narrowband speech codec. Operates at 15.20 Kbps.

RTP: Real time Transport Protocol uses to handle voice data transfer.

RTP Timeout: default 25 seconds

RTP Packet lost Percentage: default 20 %

Voice Active Detector- Default disable

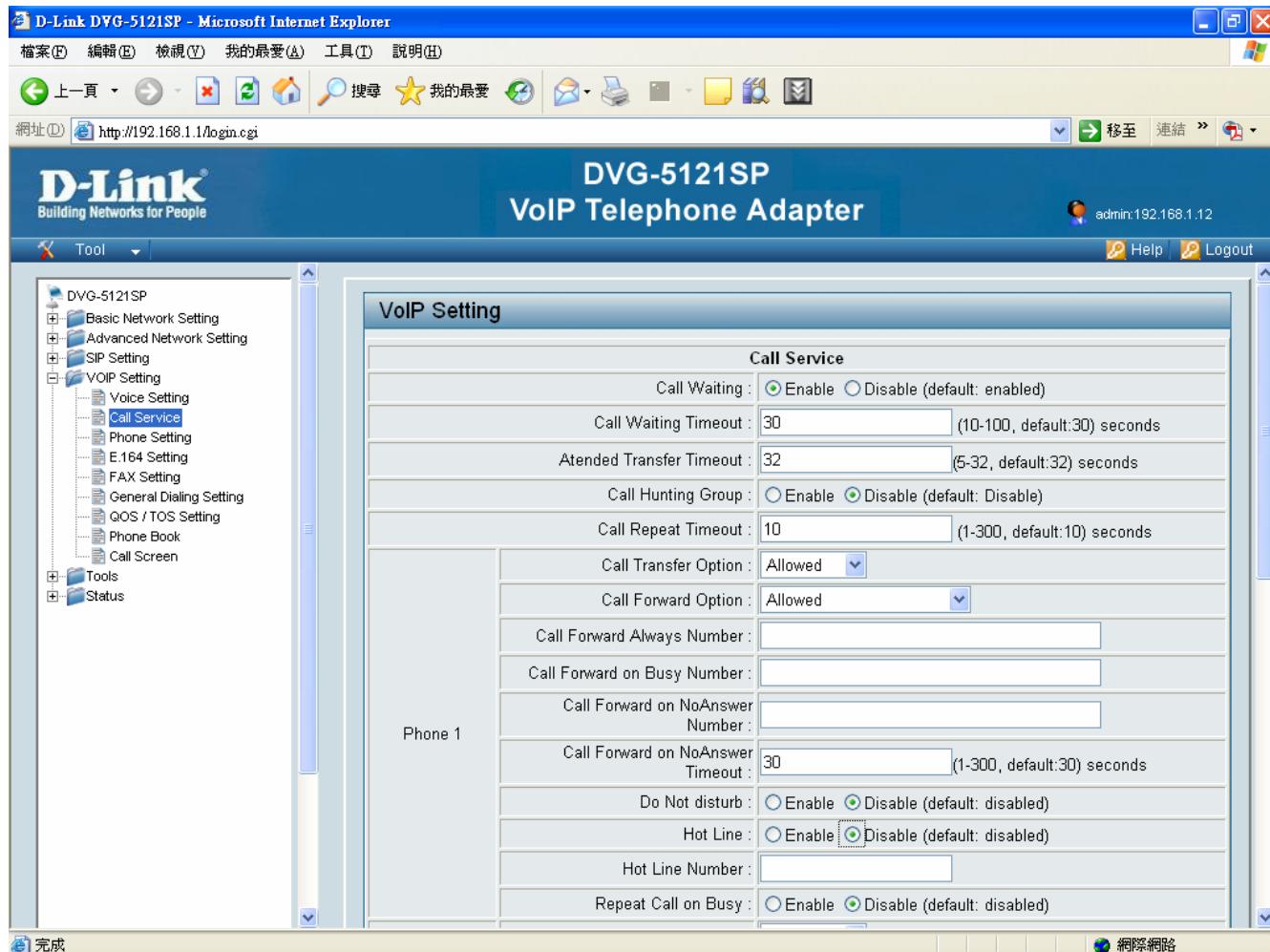
Line Echo Canceller Tail Length- G.168 is an ITU-T standard for eliminating the echo caused by the second by the sound of your voice reverberating in the telephone receiver while calling.

Default: 24 msec

Automatic Gain Control Tx Level- Choose which gain transmission level user want to control: from 0 to 30. Default: disable.

Automatic Gain Control Rx Level- Choose which gain transmission level user want to control: from 0 to 30
Default: disable.

7-2. Call service:



Call Waiting- Select **Enabled** or **Disabled**. Default is: **Disable**.

Call Waiting Timeout- The waiting timeout can be set if user choose call waiting function enabled. Default is: 30 seconds.

Attended Transfer Timeout- The attended transfer timeout can be set if user choose call waiting function enabled. Default is: 32 seconds.

Call Hunting Group- Select **Enabled** or **Disabled**. Default is: **Disable**.

Hunting/Ring: It is able to set FXS group hunting using simultaneous ring or sequential ring.

When there is an incoming call, the VoIP telephone adapter will automatically assign an unassigned call according to Hunting Priority. If Line 2 does not want to be set as an assigned

line to receive any inbound calls, the function can be disabled. Users can also use the Up or Down key to adjust hunting priority.

Call hunting timeout- The call repeat timeout can be set if user choose call hunting group function enabled. Default is: 30 seconds.

Call repeat timeout- Set call repeat timeout value to setting.. Default is: 10 seconds.

Call transfer- Enable the call transfer function on the specific phone port.

Call forward- Enable the call forward function on the specific phone port.

Call Forward Always Number- Enter the **Forward Always Number** for an automatic dialing function.

Call Forward on Busy Number- Enter the **Forward on Busy Number** for an automatic dialing function.

Call Forward on NoAnswer Number- Enter the **Forward on No Answer Number** for an automatic dialing function.

Call Forward on NoAnswer Timeout- Enter the **Forward on NoAnswer Timeout** value to setting. Default: 30 seconds.

Do not disturb- Select **Enabled** or **Disabled**. Default is: **Disable**.

Hotline Functions- Phone port: When the user picks up the phone, the VoIP telephone adapter automatically dials your assigned hotline number. When in hotline mode, other lines cannot be used.

Hot Line Number- Enter the hot line number for an automatic dialing function.

Repeat Call on Busy- Select **Enabled** or **Disabled**. Default is: **Disable**.

7-3. Phone Setting

Tone Setting- Select local area to tone type setting.

Caller ID Type- Select FSK type. In most cases, Bellcore is preferred in North America and ETSI in Europe.

Note: If you register the VoIP telephone adapter to a Proxy, you may be unable to make a call. This is due to the fact that the VoIP telephone adapter doesn't send the number for authorization.

Caller ID Power Level- Set power level to device from 0~20. Default is: 20db, the maximum.

Caller ID Display- Show call ID in device information, select **Before Ring** or **After Ring** by user preference.

Caller ID Type 1 Alerting Signal- Select alerting signal type to device 1.

Caller ID Type 2 Alerting Signal- Select alerting signal type to device 2.

Ring Impedance- Select ring impedance base on local settings. Pls contact to ISP.

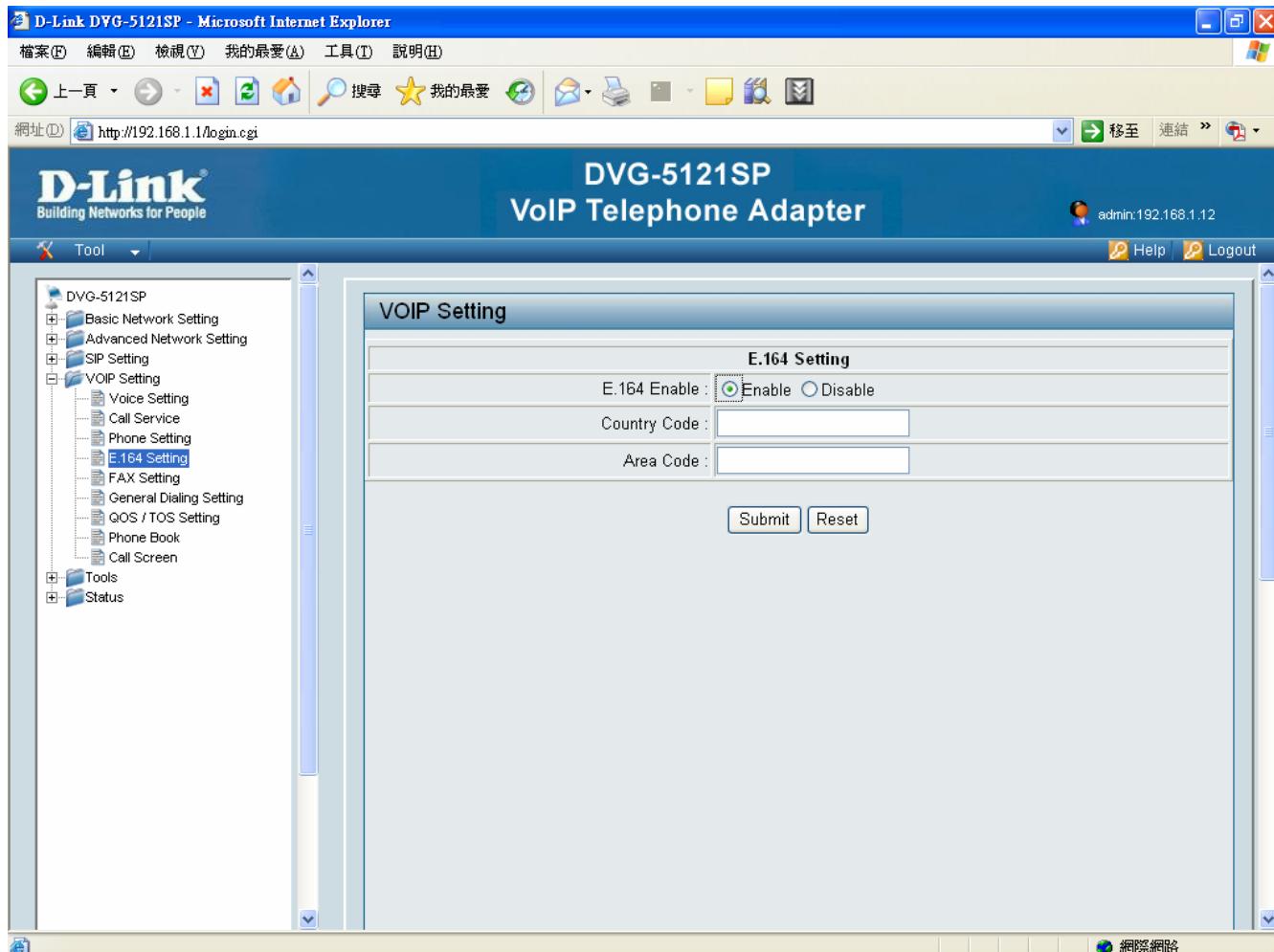
Hook Flash Detect Upper Bound- Set Hook Flash Detect upper bound. Normally will under 1000 msec.

Hook Flash Detect Lower Bound- Set Hook Flash Detect lower bound. Normally will over 100 msec or above.

Voice Tx Level- voice hearing volume setting level control, default power level setting from 3~ 6.

Voice Rx Level- voice listening volume setting level control, default power level setting from 3~ 6.

7-4. E.164 Setting



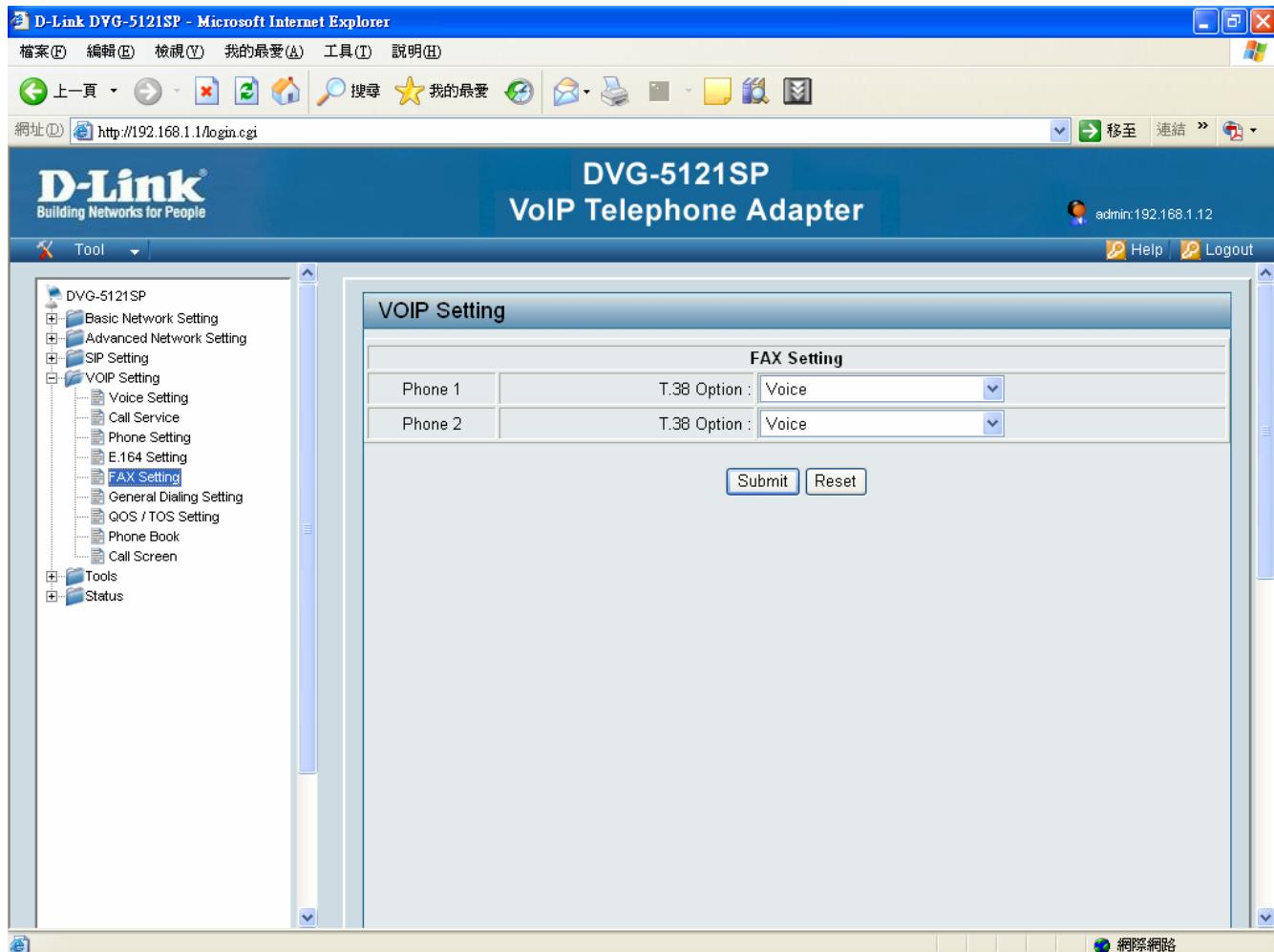
Enable the E.164 function. Entry the county and Area code in to the blank then "submit" settings.

Country Code- Users please select the desired country code.

Area Code- Please enter the area code.

E.164 Numbering: To invite Proxy to follow the E.164 rule. It depends on the Proxy. **If you fail to make a call, please contact your ITSP.**

7-5. Fax Setting :



Voice- voice data .

T.38 Fax relay- Integrated and tested with Fax data modems at rates of up to 14.4 kbps. UDP and TCP support.

Voice and T.38 Fax relay : both of voice and T.38 Fax relay

Voice and T.38 Fax Pass Through: bridge mode

7-6. General Dialing Setting

VOIP Setting

General Dialing Setting

Inter-digit Timeout : 4 (1-20, default:4) seconds

First-digit Timeout : 16 (1-60, default:16) seconds

Feature Invocation Key : --Flash Hook--

Transfer Key : *#

New Call Key : **

Three Way Conference Key : *3

Hold Call Key : *1

Call Pick up Key : *0

Pond Key(#): Enable Disable (default:Enable)

Submit Reset

Inter-digit Timeout- default 4 sec

First-digit Timeout- default 16 sec

Transfer Key- default *#

New Call Key- **

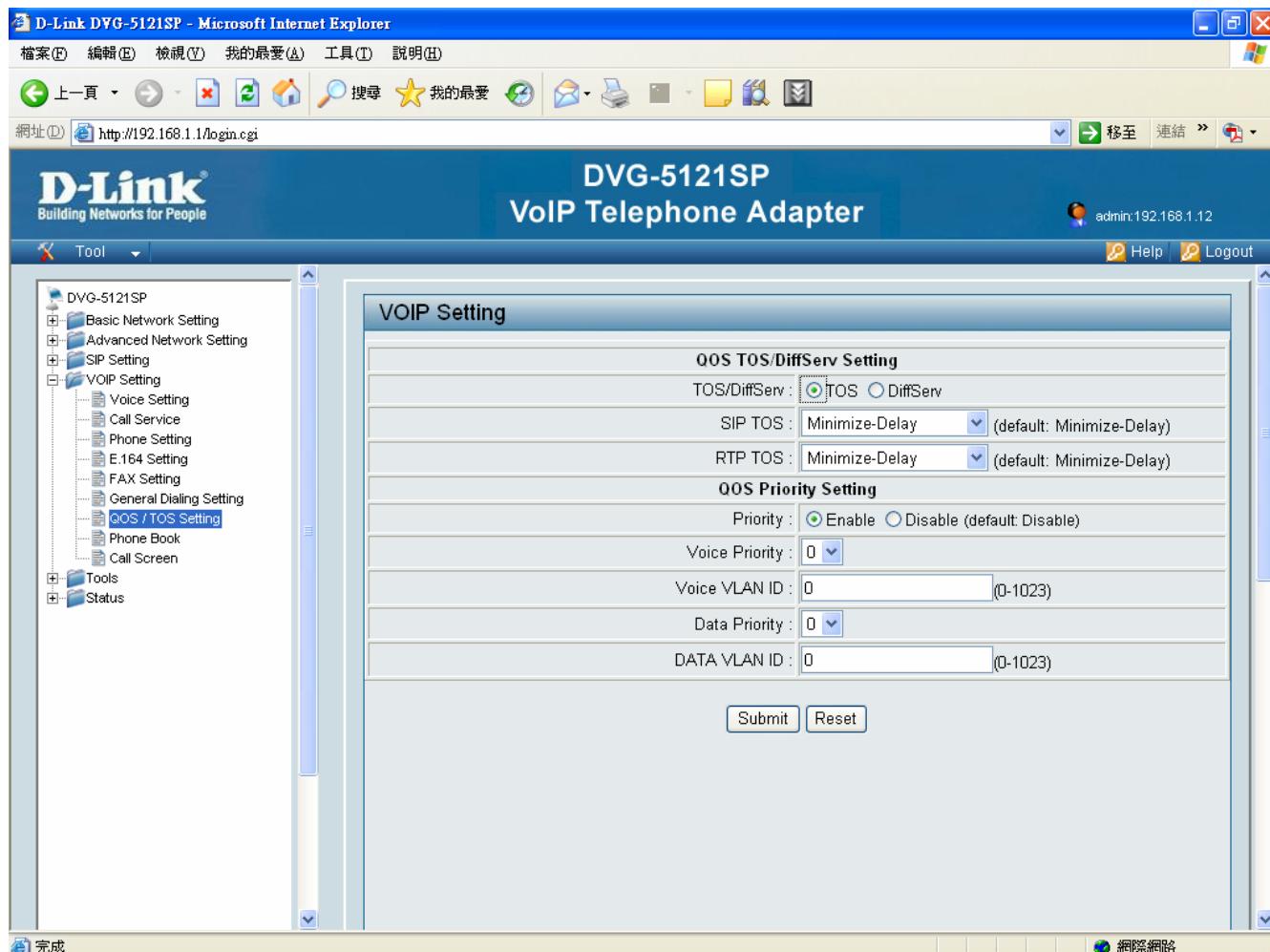
Three Way Conference Key- default *3

Hold Call Key- When users takes European type, please select *2

Default *1 (for US type)

Pond Key- Select **Enabled** or **Disabled**. Default is: **enable**.

7-7. QOS/TOS Setting :



QOS:

Quality of Service (QOS) refers to both a network's ability to deliver data with minimum delay, and the networking method used to provide bandwidth for real-time multimedia applications.

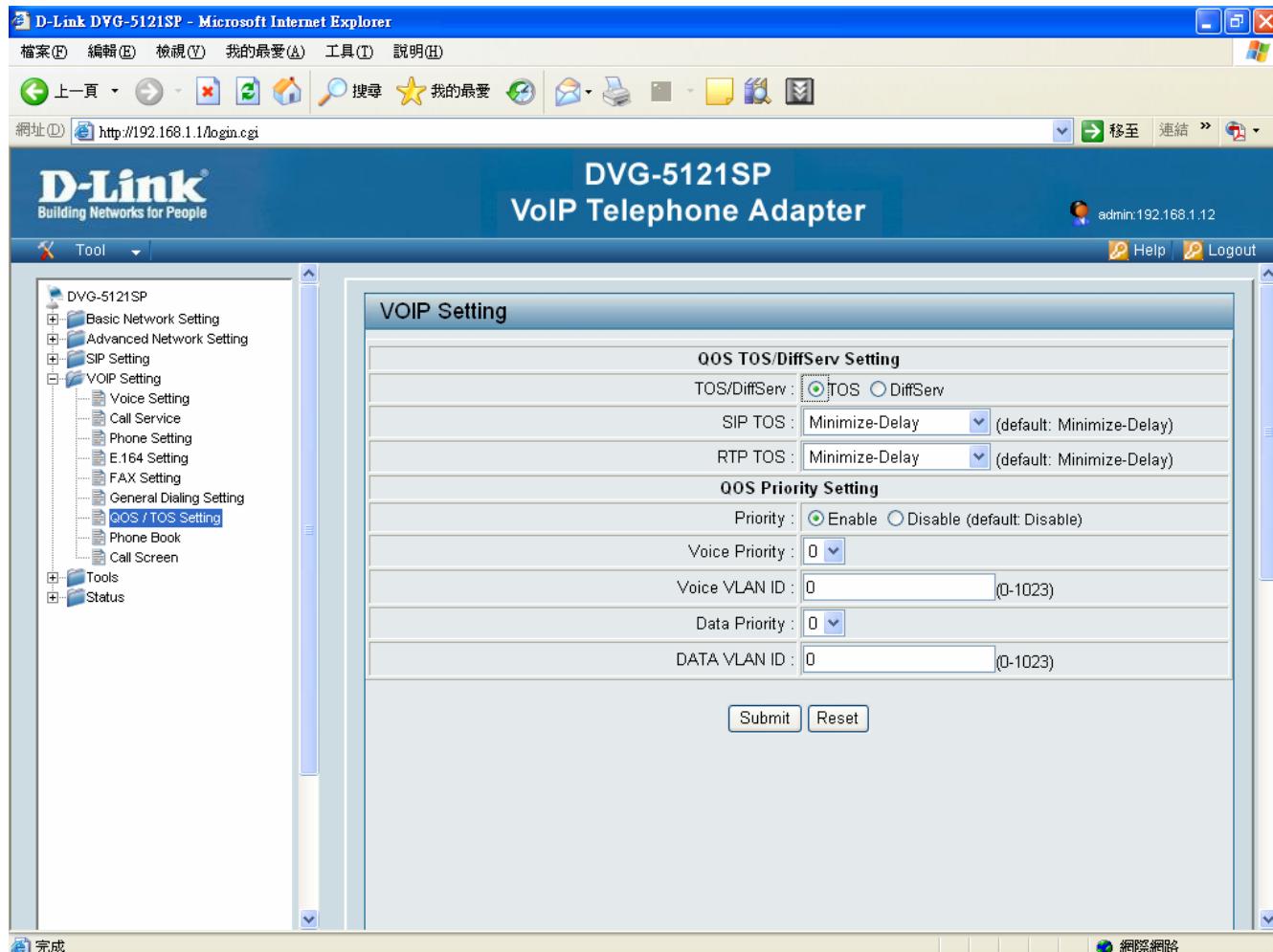
TOS:

Network traffic can be classified by setting the TOS (Type of Service) values at the data source so a server can decide the best method of delivery, that is the least cost, fastest route and so on.

DiffServ :

DiffServ is a class of service (COS) model that marks packets so that they receive specific Perhop treatment. In addition, applications do not have to request a particular service or give advanced notice of whether traffic is going.

TOS



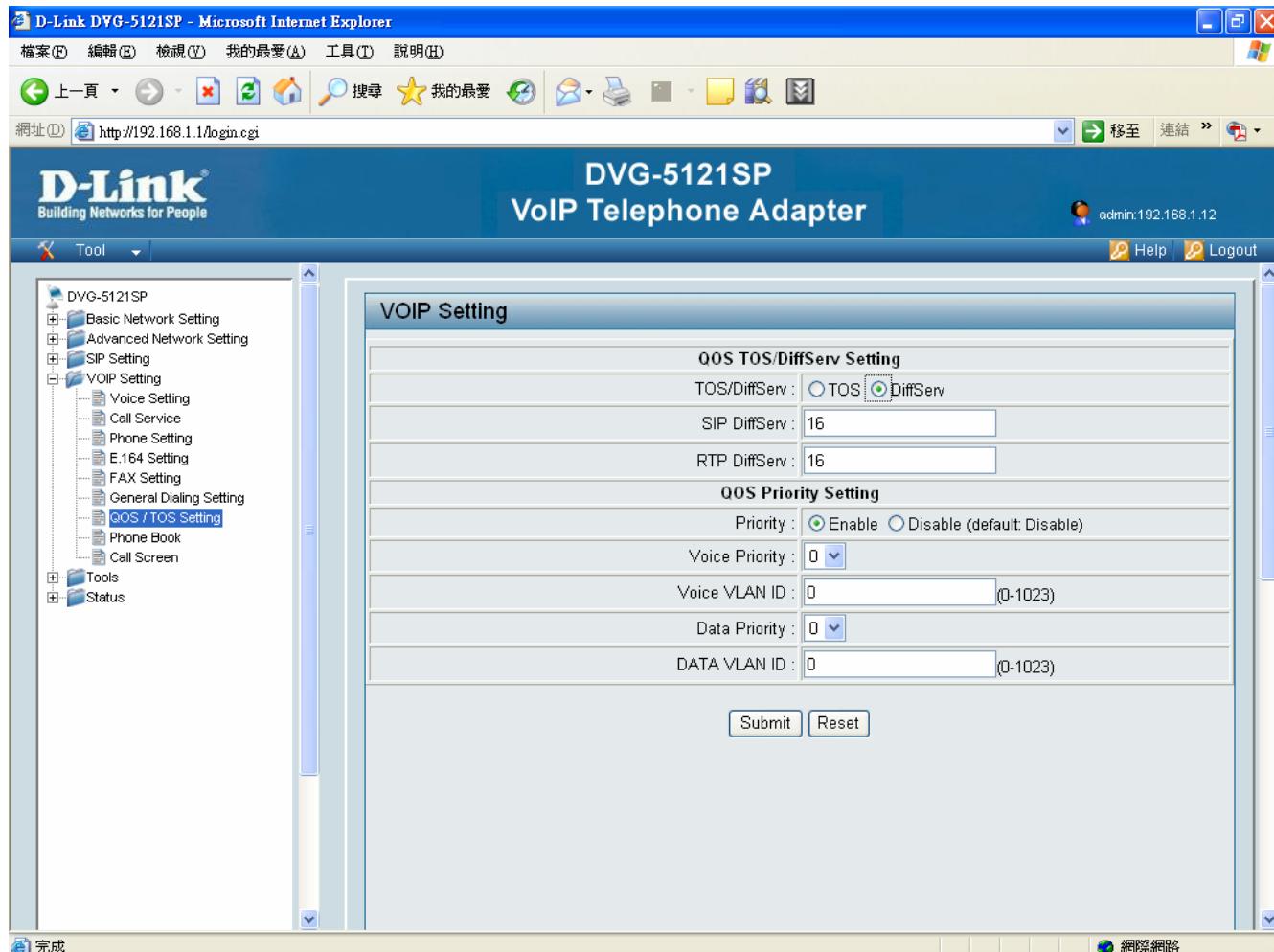
- QoS (Quality of Service): Sets an external bandwidth to ensure sound quality during transmission (When this function is enabled, the voice packet has the highest priority to ensure telecommunication quality while less bandwidth is assigned for data transmission). Some models of the VoIP telephone adapter without this function can adjust the bandwidth automatically.

SIP TOS- default Minimize-Delay

RTP TOS- default Minimize-Delay

QOS Priority Setting- default disable

DiffServ Setting



- **ToS/DiffServ (Type of Service/DSCP):** The voice packet has the highest priority to ensure telecommunication quality; the larger the value you set, the higher priority you will get.

SIP TOS- Select **Enabled** or **Disabled**. Default is: Minimize-Delay

RTP TOS- Select **Enabled** or **Disabled**. Default is: Minimize-Delay

QoS Priority Setting- Select **Enabled** or **Disabled**. Default is: disable

7-8. Phone Book

The screenshot shows the 'VOIP Setting' page in the DVG-5121SP configuration interface. The left sidebar contains a navigation tree with 'DVG-5121SP' at the top, followed by 'Basic Network Setting', 'Advanced Network Setting', 'SIP Setting', 'VOIP Setting' (which is expanded to show 'Voice Setting', 'Call Service', 'Phone Setting', 'E.164 Setting', 'FAX Setting', 'General Dialing Setting', 'QOS / TOS Setting', 'Phone Book' (selected), and 'Call Screen'), 'Tools', and 'Status'. The main content area is titled 'VOIP Setting' and contains two tables: 'Phone Book' and 'Phone Book List'. The 'Phone Book' table has columns for 'SpeedDial Digit' (dropdown menu showing '#0'), 'Phone Number' (empty input field), and 'Note' (empty input field). Below these tables are 'Submit' and 'Reset' buttons. The 'Phone Book List' table shows one entry: '#0' in the SpeedDial Digit column, '1234567' in the Phone Number column, and 'none' in the Note column. There is also a small trash can icon next to the note column. The top of the page shows the D-Link logo and 'DVG-5121SP VoIP Telephone Adapter' title, along with a user 'admin:192.168.1.12'. The top bar also includes standard Microsoft Internet Explorer navigation and search buttons.

User can set phone book themselves by 50sets NO. Provides shortcuts for dialing frequently used (VOIP) phone number #0 ~ #9, total 10 digit list to support speed dial.

7-9. Call Screen:

The screenshot shows the 'VOIP Setting' page in the DVG-5121SP configuration interface. The left sidebar lists 'DVG-5121SP' and several configuration categories: Basic Network Setting, Advanced Network Setting, SIP Setting, VOIP Setting, Tools, and Status. The main content area is titled 'Call Screen' and contains two sections for 'Phone 1' and 'Phone 2'. Each section has two rows: 'Reject Incoming Phone Number' and 'Reject Outgoing Phone Number'. Each row includes a text input field, an 'Action' dropdown menu (set to 'Submit'), and a 'Submit' button. The 'DVG-5121SP VoIP Telephone Adapter' logo is at the top right, and the admin IP 'admin:192.168.1.200' is also visible.

Enter Reject Incoming Phone Number & Reject Outgoing Phone Number in this page.

8. Tools

8-1. Admin:

Account Level: Select one of account levels as for Admin, User, and Guest

Account Name: Enter the Name to manage account

Account Password: Enter the pass phrase to be used for Authentication.

Confirm Password: Reenter the pass phrase to be use for Authentication.

Log Timeout: (0-32767, default:300, 0:never) seconds

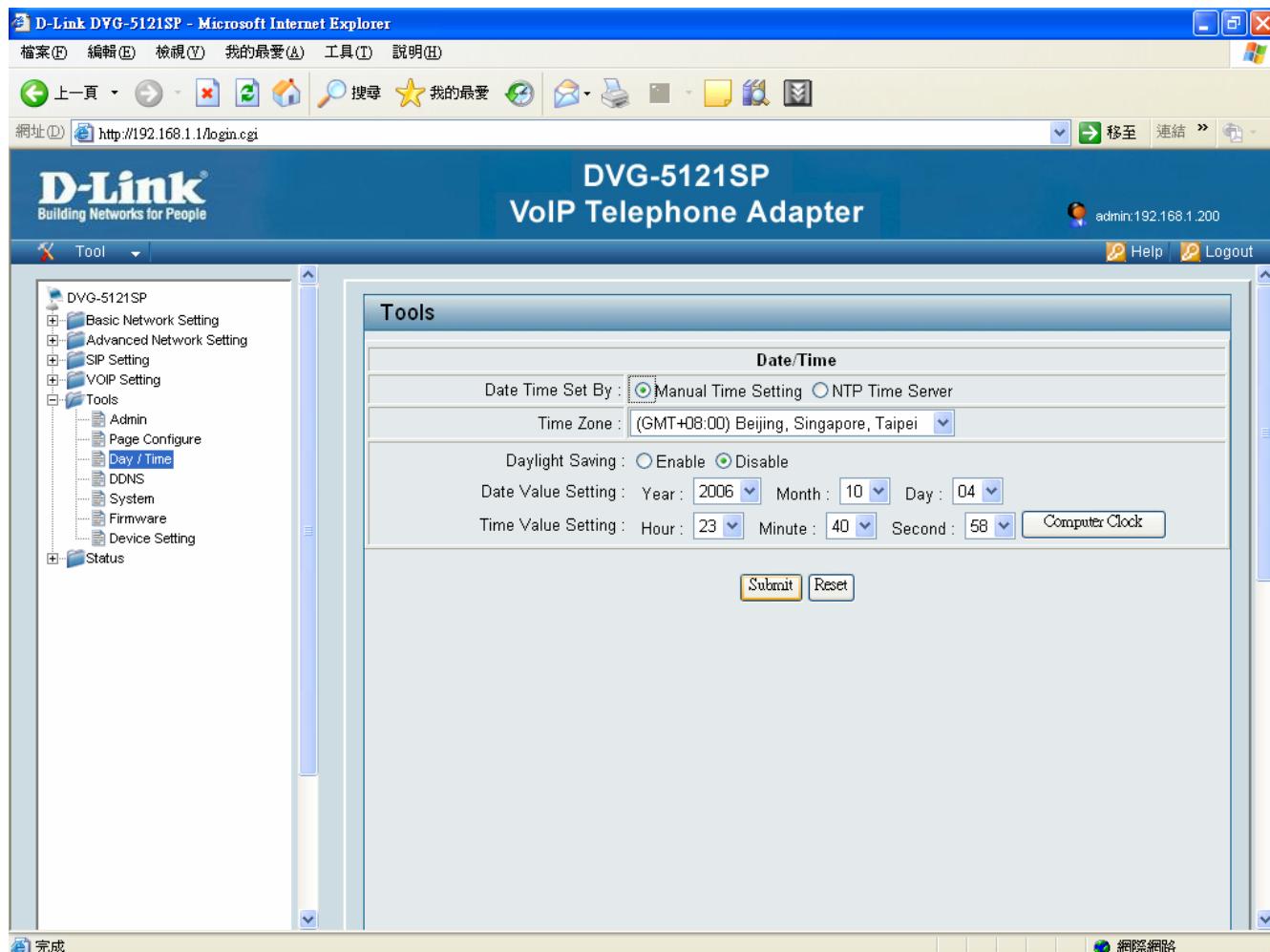
Remote Administrator: Enable or Disable to remote administrator then click Submit.

Remote administration: Choose enable to set up the remote administration, and set up user settings.

8-2. Page Configure:

WEB Page Authority Setting- Choose one of the pages from below page items and conduct a View and Configure level as Admin, User, Guest and non Authority to manage the VoIP Terminal Adapter WEB page.

8-3. Date/Time:

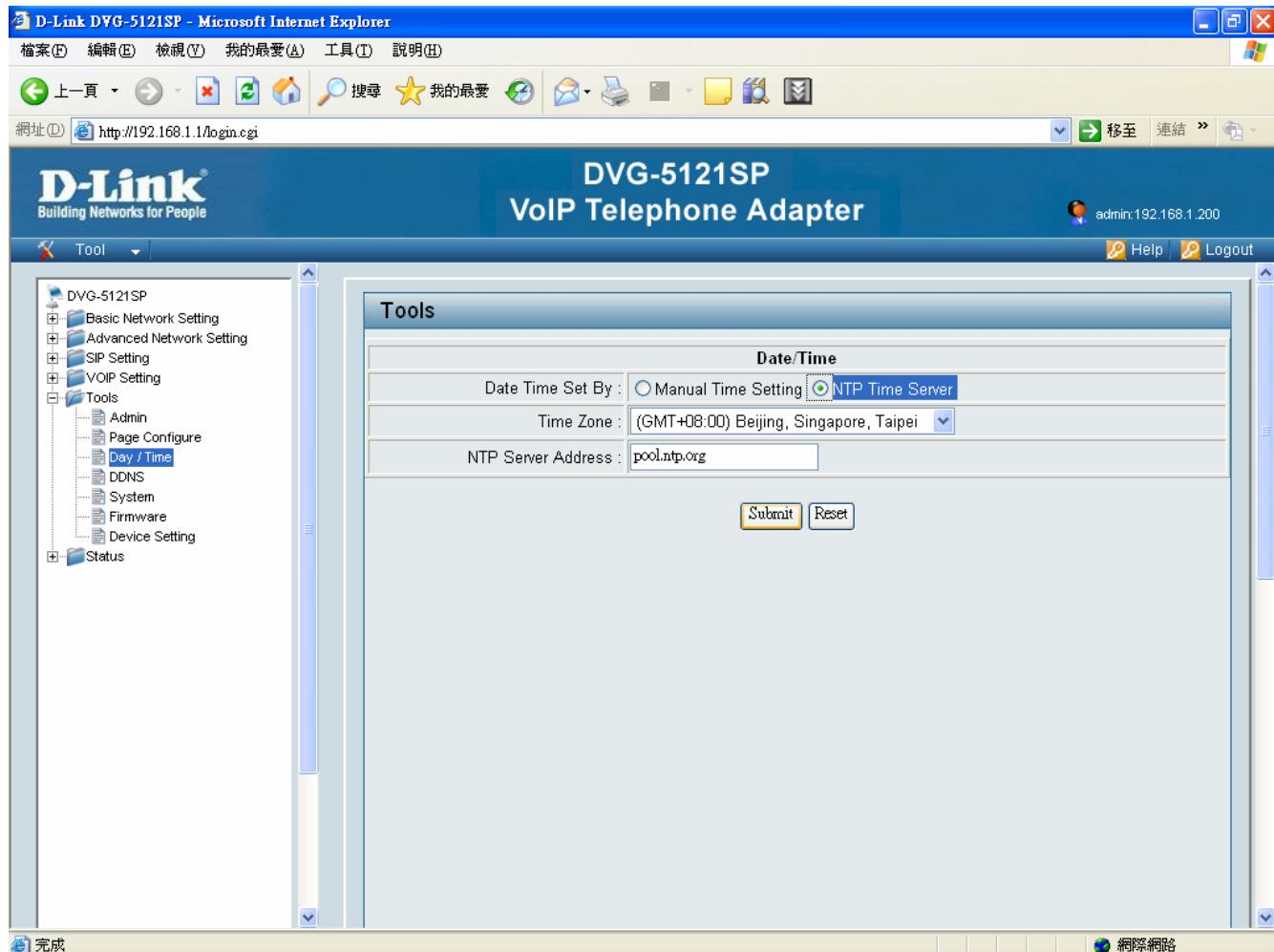


Manual: To manually input the time option and enter the values for the Year, Month, Day, Hour, Minute, and Second.

Click the Computer Clock button, to copy your computer's time.

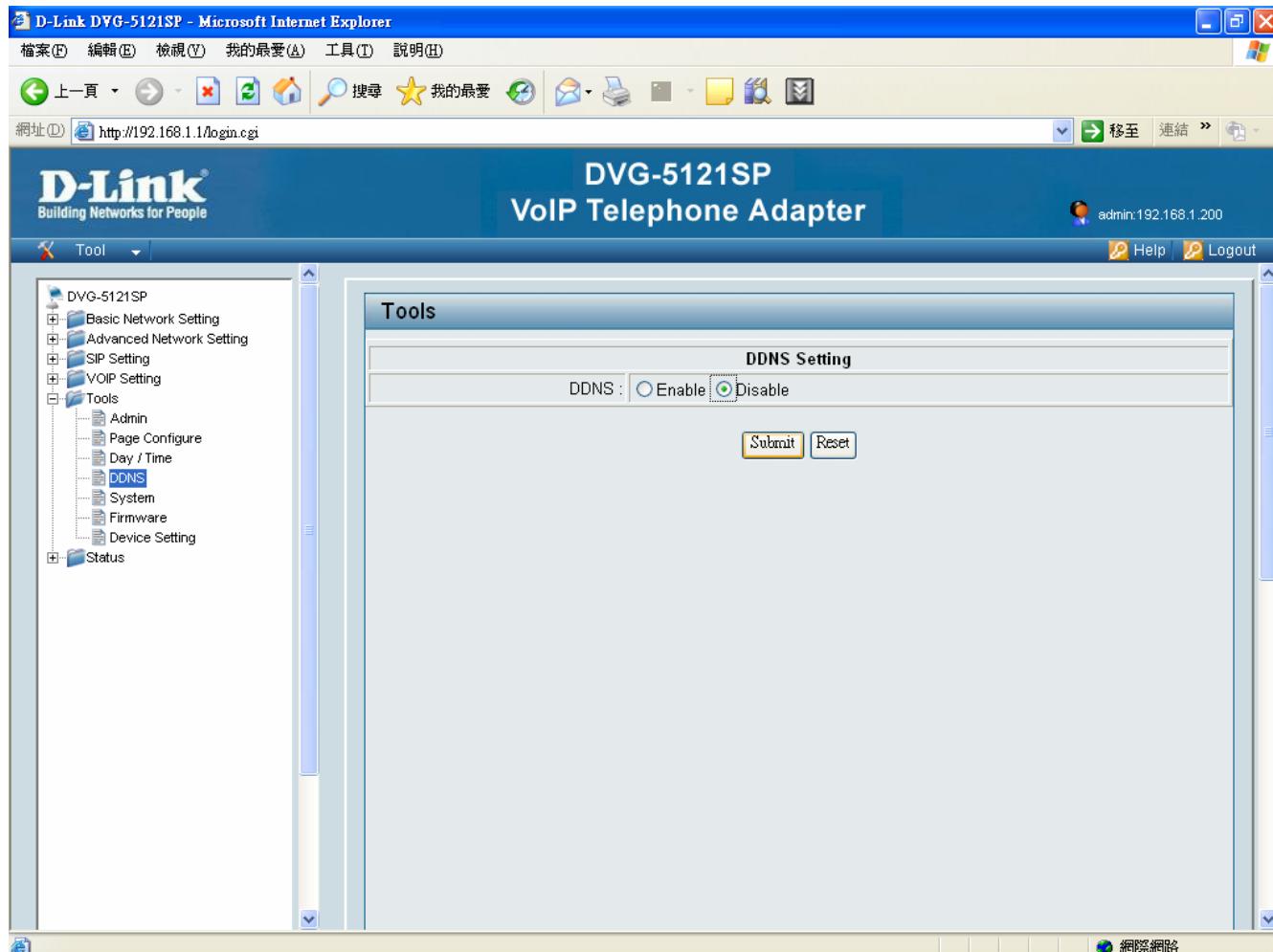
NTP: NTP is short for Network Time Protocol. NTP synchronizes computer clock times in a network of computers.

This field is optional.

NTP Time Server Settings:

Choose which Time zone in located area, set NTP Server Address to update network local time by system automatically

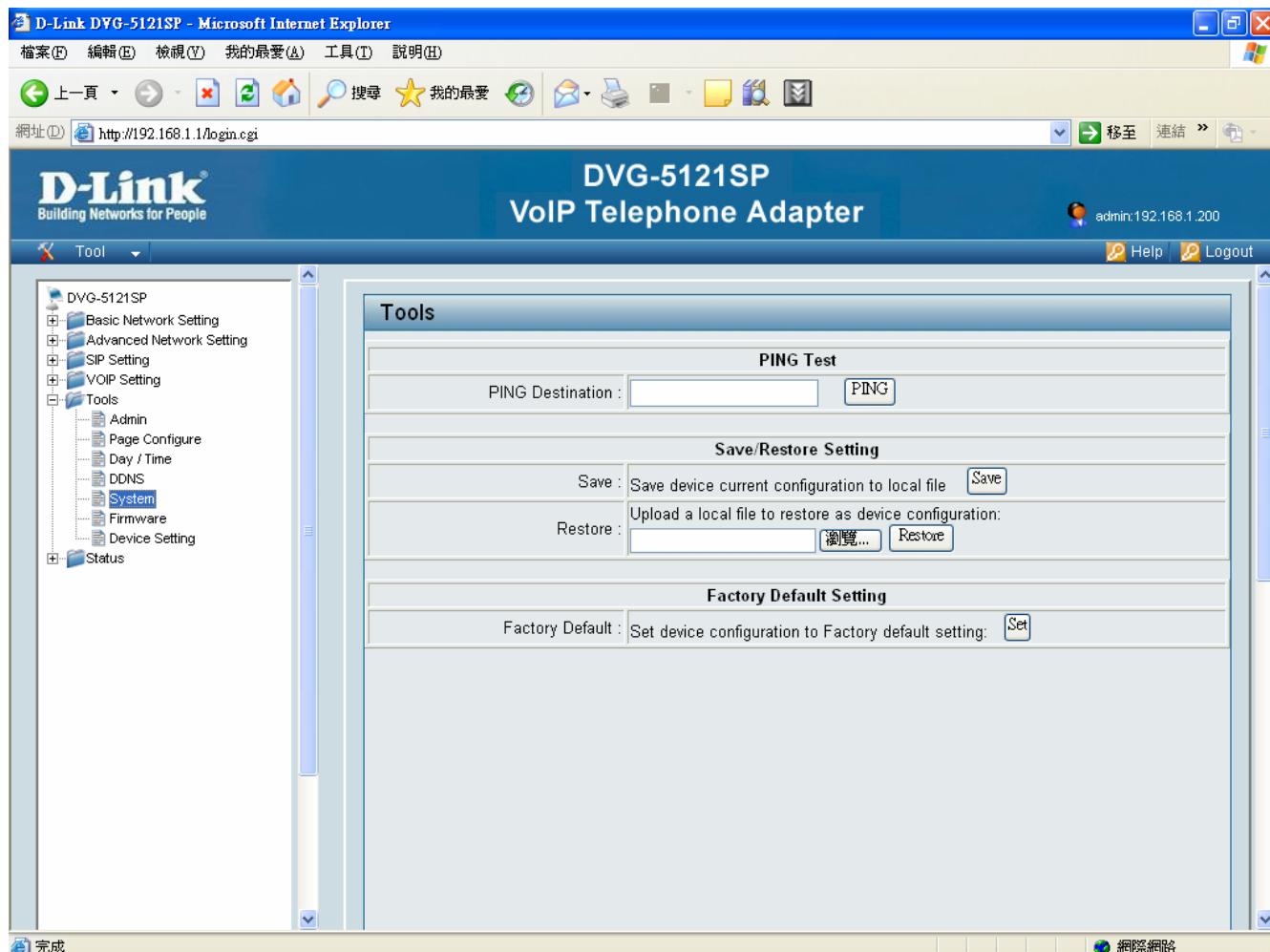
8-4. DDNS:



Dynamic Domain Name System is a method of keeping a domain name linked to a changing IP Address. This is a useful feature since many computers do not use a static IP address.

To use the DDNS update client built into the router, click on **Enabled**.

8-5. System:

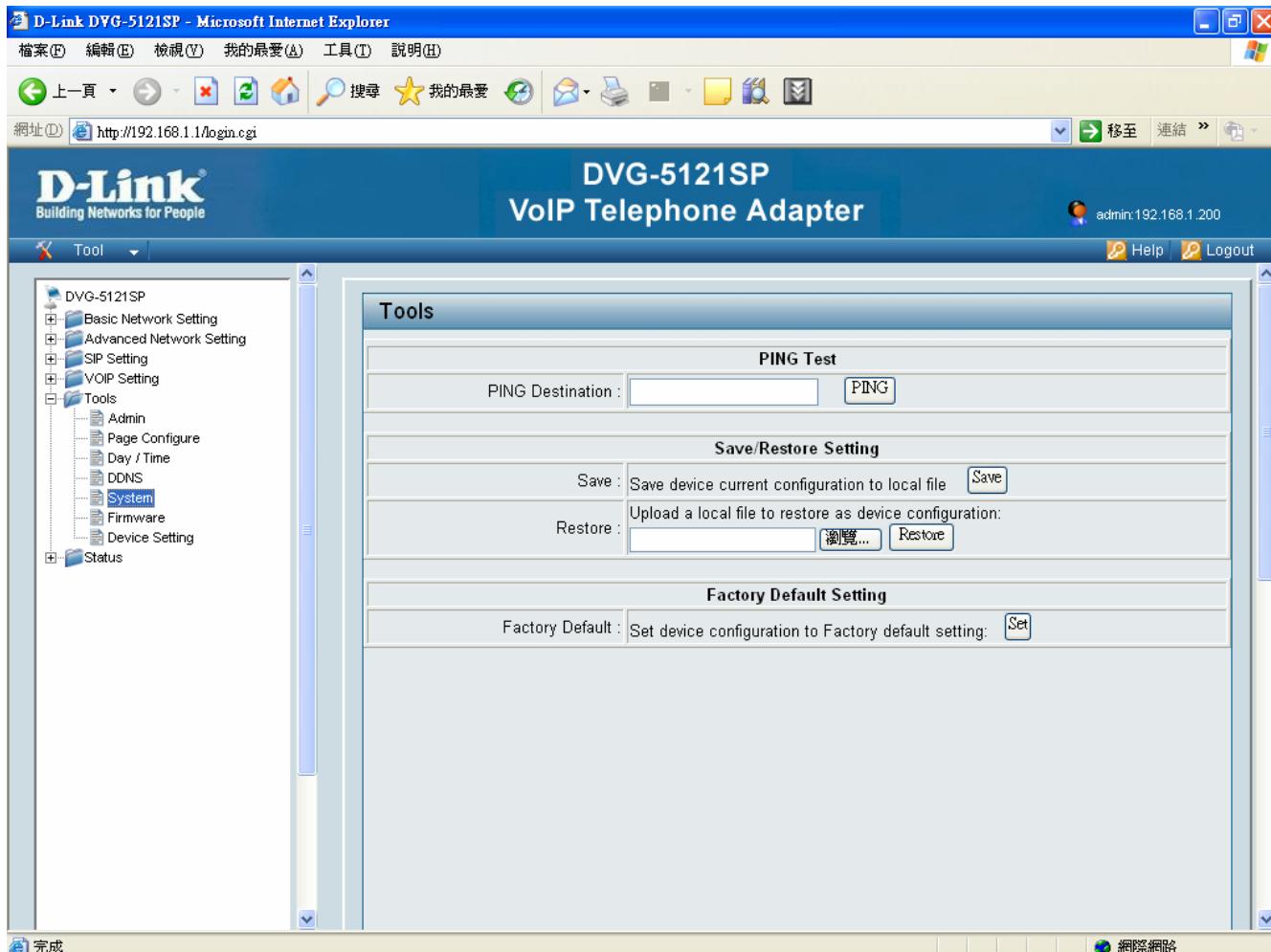


Pin Test: The VoIP Terminal Adapter offers you to conduct a Ping test by enter the host name or an IP address then click PING.

Save/Restore Setting: Click Save/Restore to save/restore the current settings to the local Hard Drive.

Factory Default: Click Restore to restore the factory default settings.

8-6. Firmware:



You can upgrade the firmware of the VoIP Terminal Adapter here. Make sure the firmware you want to use is on the local hard drive of the computer. Please check the D-Link Support site for firmware updates at <http://support.dlink.com>. You can download firmware upgrades to your hard drive from the D-Link support site.

- **Firmware File:** Click on the link in this screen to find out if there is an updated firmware; if so, download the new firmware to your hard drive than click UPLOAD.
- **Server Type:** Select either FTP or TFTP
- **Server Address:** Enter the IP address of your FTP or TFTP server than click UPLOAD.

8-7. Device Setting:

The screenshot shows a Microsoft Internet Explorer window displaying the configuration interface for the DVG-5121SP VoIP Telephone Adapter. The title bar reads "D-Link DVG-5121SP - Microsoft Internet Explorer". The address bar shows the URL "http://192.168.1.1/login.cgi". The main content area is titled "DVG-5121SP VoIP Telephone Adapter". On the left, a navigation tree includes "DVG-5121SP", "Basic Network Setting", "Advanced Network Setting", "SIP Setting", "VOIP Setting", "Tools" (which is expanded to show "Admin", "Page Configure", "Day / Time", "DDNS", "System", "Firmware", and "Device Setting"), and "Status". The right panel is titled "Tools" and contains the "Device Setting" configuration page. It includes fields for "Device Mode" (set to "Router"), "WAN Interface" (set to "eth0"), "LAN Interface" (set to "eth1"), "IPv4 Base Reachable Time" (set to "30" with a note "(default:30)"), and "IPv4 GC Stale Time" (set to "60" with a note "(default:60)"). At the bottom of this panel are "Submit", "Reset", and "Reboot" buttons. The status bar at the bottom of the browser window shows "完成" (Completed) and "網際網路" (Internet).

Bridge or Router mode settings: user can choose network mode and some user settings in this page.

9. Status:

9-1. Device Information

Status

Device Information

Model Name :	DVG5121SP
Firmware Version :	0.99 , Mon, 2 Oct 2006
Host Name :	DVG-5121SP . dlink.com
System Date :	Wed Oct 4 23:49:23 CST 2006
Up Time :	2:21
Device Mode :	Router Mode

WAN

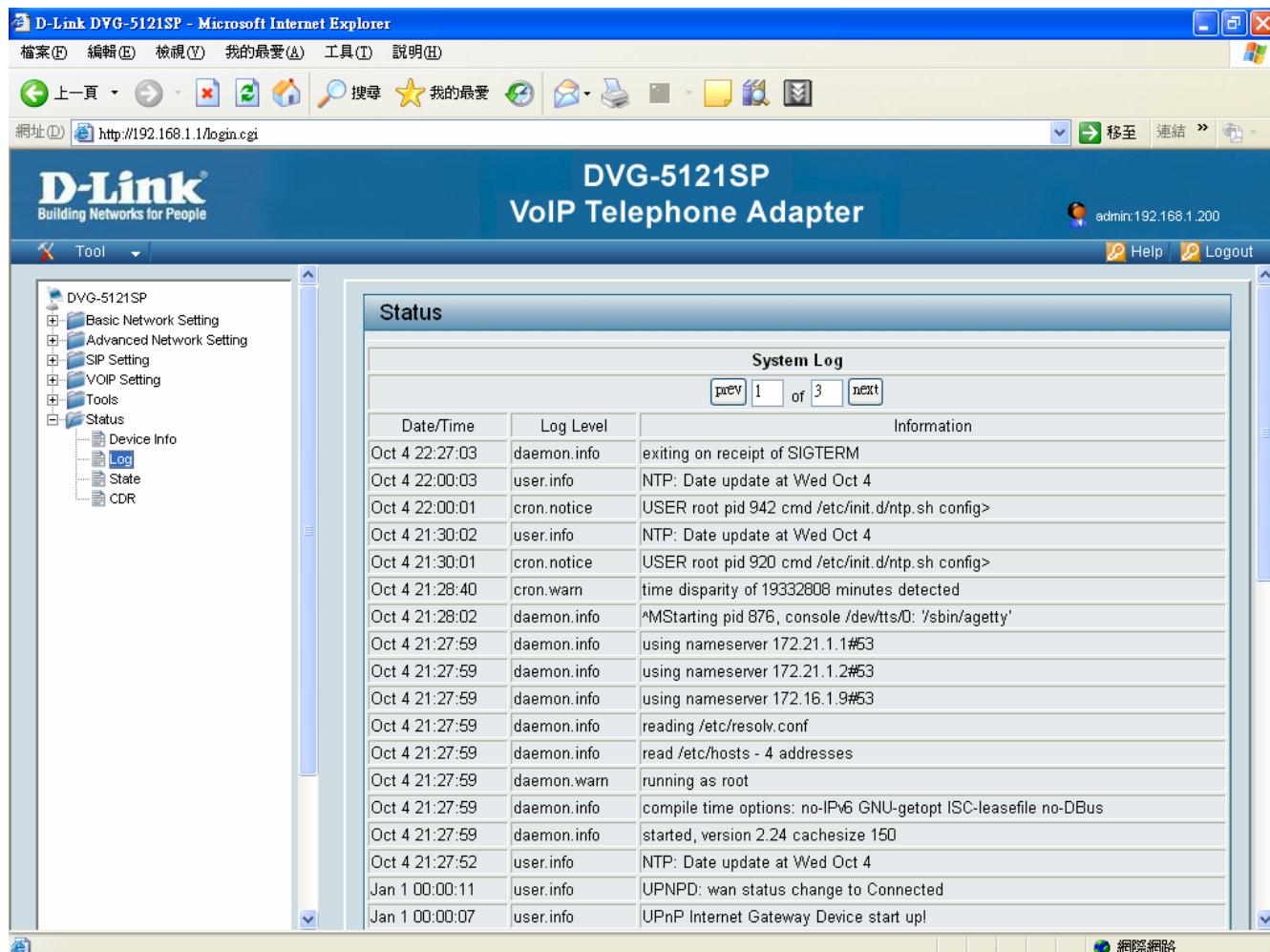
IP Assignment :	DHCP
MAC Address :	00:46:76:01:10:00
IP Address :	172.21.81.160
Subnet Mask :	255.255.240.0
Gateway Address :	172.21.80.254
DNS 1 (Primary) :	172.21.1.1
DNS 2 (Secondary) :	172.21.1.2
Other DNS :	172.16.1.9 ..

LAN

MAC Address :	00:46:76:01:10:01
IP Address :	192.168.1.1
Subnet Mask :	255.255.255.0

This page displays the current information for the DVG-5121SP

9-2. System Log:



The screenshot shows the 'System Log' page of the DVG-5121SP VoIP Telephone Adapter. The page is titled 'DVG-5121SP VoIP Telephone Adapter' and includes a navigation menu on the left and a status summary on the right. The main content is a table of log entries with columns for Date/Time, Log Level, and Information.

Date/Time	Log Level	Information
Oct 4 22:27:03	daemon.info	exiting on receipt of SIGTERM
Oct 4 22:00:03	user.info	NTP: Date update at Wed Oct 4
Oct 4 22:00:01	cron.notice	USER root pid 942 cmd /etc/init.d/ntp.sh config>
Oct 4 21:30:02	user.info	NTP: Date update at Wed Oct 4
Oct 4 21:30:01	cron.notice	USER root pid 920 cmd /etc/init.d/ntp.sh config>
Oct 4 21:28:40	cron.warn	time disparity of 19332808 minutes detected
Oct 4 21:28:02	daemon.info	^MStarting pid 876, console /dev/tts/0: '/sbin/agetty'
Oct 4 21:27:59	daemon.info	using nameserver 172.21.1.1#53
Oct 4 21:27:59	daemon.info	using nameserver 172.21.1.2#53
Oct 4 21:27:59	daemon.info	using nameserver 172.16.1.9#53
Oct 4 21:27:59	daemon.info	reading /etc/resolv.conf
Oct 4 21:27:59	daemon.info	read /etc/hosts - 4 addresses
Oct 4 21:27:59	daemon.warn	running as root
Oct 4 21:27:59	daemon.info	compile time options: no-IPv6 GNU-getopt ISC-leasefile no-DBus
Oct 4 21:27:59	daemon.info	started, version 2.24 cachesize 150
Oct 4 21:27:52	user.info	NTP: Date update at Wed Oct 4
Jan 1 00:00:11	user.info	UPNP: wan status change to Connected
Jan 1 00:00:07	user.info	UPnP Internet Gateway Device start up!

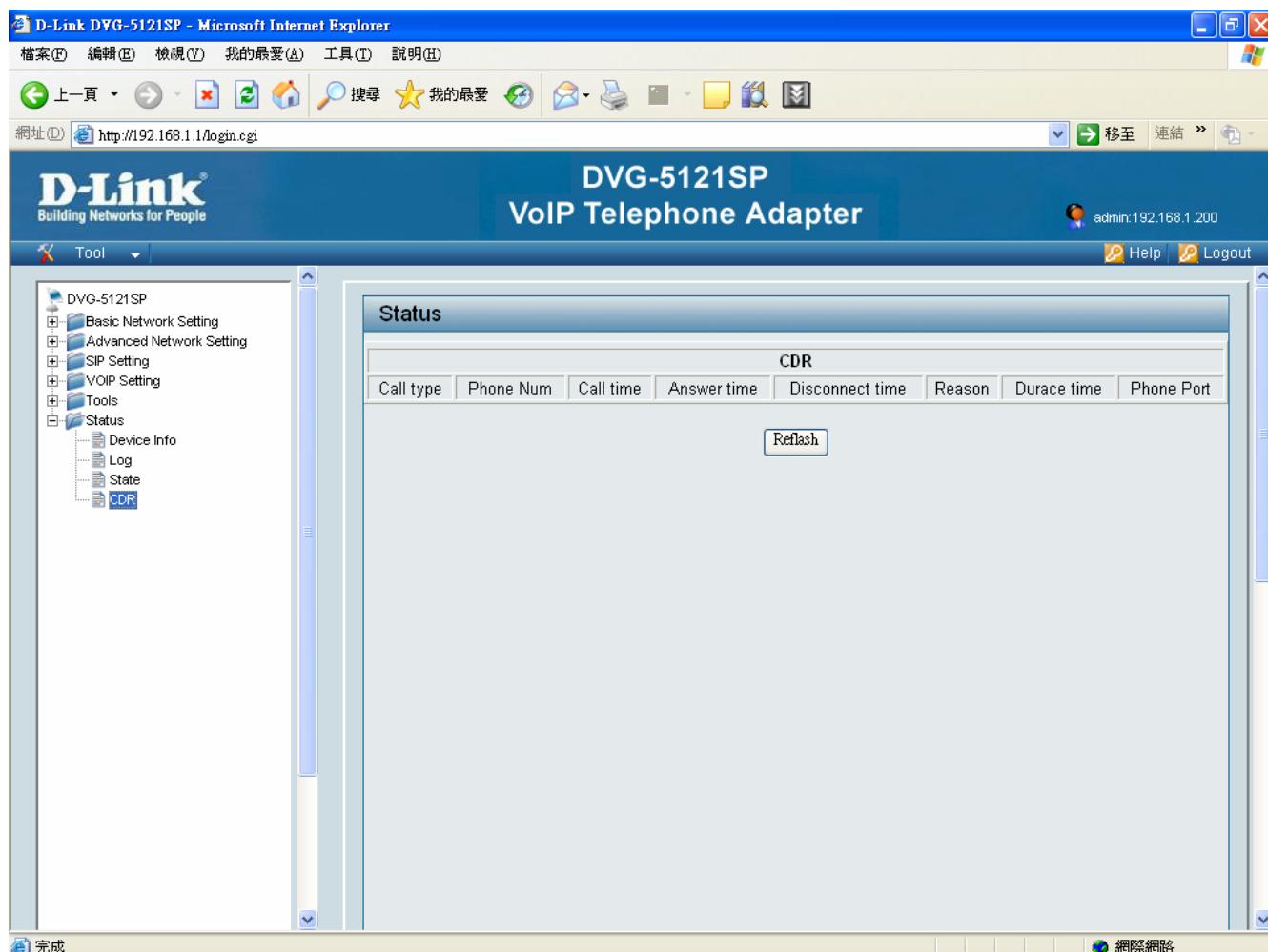
The VoIP Terminal Adapter keeps a running log of events and activities occurring on the VoIP. If the device is rebooted, the logs are automatically cleared.

9-3. Line Status:

The screenshot shows a Microsoft Internet Explorer window displaying the DVG-5121SP VoIP Telephone Adapter configuration interface. The title bar reads "D-Link DVG-5121SP - Microsoft Internet Explorer". The address bar shows the URL "http://192.168.1.1/login.cgi". The main content area is titled "DVG-5121SP VoIP Telephone Adapter". On the left, a navigation tree includes "DVG-5121SP", "Basic Network Setting", "Advanced Network Setting", "SIP Setting", "VOIP Setting", "Tools", and "Status" (which is expanded to show "Device Info", "Log", "State", and "CDR"). The "State" option is currently selected. The main panel is titled "Status" and contains two sections: "Line Status" and "RTP Packet Summary". The "Line Status" section lists "Phone 0", "Phone 1", "Account 1", and "Account 2". The "RTP Packet Summary" section has tabs for "Phone", "Channel", "RTP total/current Send pkts", "RTP total/current Recv pkts", and "RTP total/current Packet loss". A "Reflash" button is located at the bottom of this section. The bottom of the window shows standard Internet Explorer navigation buttons like Back, Forward, Stop, and Home, along with a "完成" (Finish) button and a "網際網路" (Internet) button.

This page displays the current information for the Line status.

9-4. CDR:



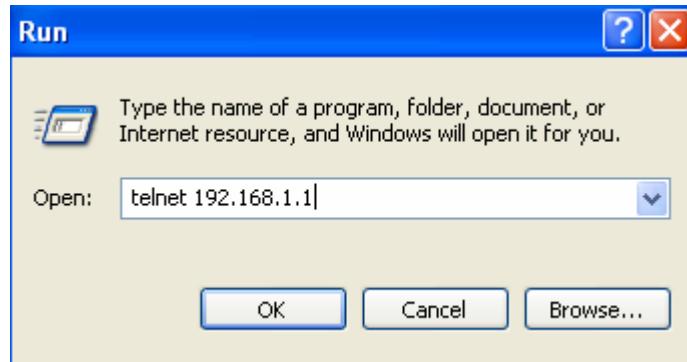
The screenshot shows a Microsoft Internet Explorer window displaying the DVG-5121SP VoIP Telephone Adapter configuration interface. The title bar reads "D-Link DVG-5121SP - Microsoft Internet Explorer". The address bar shows the URL "http://192.168.1.1/login.cgi". The main content area is titled "Status" and "CDR". The CDR table has the following columns: Call type, Phone Num, Call time, Answer time, Disconnect time, Reason, Durace time, and Phone Port. A "Refresh" button is located at the top of the table. On the left, a navigation tree shows "DVG-5121SP" with sub-options: Basic Network Setting, Advanced Network Setting, SIP Setting, VOIP Setting, Tools, and Status (which is expanded to show Device Info, Log, State, and CDR). The top right corner shows the administrator's login information: "admin:192.168.1.200". The bottom right corner has "Help" and "Logout" links.

This page containing information about recent system usage such as the identities of sources (points of origin), the identities of destinations (endpoints), the duration of each call, the amount billed for each call, the total usage time in the billing period, the total free time remaining in the billing period, and the running total charged during the billing period. The format of the CDR varies among VoIP providers or programs. Some programs allow CDRs to be configured by the user.

10. Telnet

Run Telnet- Enable the Telnet control interface, run the function key as: telnet 192.168.1.1

When user wants to use the telnet interface to do the settings, it's necessary to totally log out from the Web page control because the server doesn't allow to log in 2 members at the same time.



Authentication- Enter the admin, let password blank to login the Telnet control interface.

Select item No. to do the settings, or type the "Q" to quit/ exit.

